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ABSTRACT

Designed to serve as a source of ideas for students of all age levels for science fair projects, this publication lists titles of projects by young people who participated in fairs leading to the International Science and Engineering Fair or competed in the Science Talent Search for the Westinghouse Science Scholarship and Award. The titles have been classified by subject matter according to the Library of Congress system of classification. An index provides a listing of the major topic and subtopic areas. Information is also included on how to use this book. (ML)

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THOUSANDS
OF
SCIENCE PROJECTS

Classified Titles of Exhibits Shown at Science Fairs

and/or

Produced as Projects for the Westinghouse Science Talent Search

Compiled by

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Edited by Ruby Yoshioka

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HOW TO USE THIS BOOK

Are you looking for something to do in science? Do you need inspiration for a science exhibit? Do you want a suggestion for a project?

This publication is a collection of the answers given to these questions by thousands of boys and girls who participated in fairs leading to the International Science and Engineering Fair or competed in the Science Talent Search for the Westinghouse Science Scholarships and Awards.

Each title represents a project completed by at least one student. Some projects are so basic that they have been done by thousands of youngsters. Some are largely original. Do *not* ask for further information on specific projects. Directions and plans are not available; do not write for them.

The titles have been classified by subject matter. The Library of Congress system of classification was used. Use also the index on page i to locate what you want. This book suggests fields and subjects that might not otherwise be considered.

The titles and divisional headings will provide a ready source of ideas for students at all age levels. A title or topic already listed need not prevent doing a similar project, but the student should work it out in his own way. Even if it should be duplication, it will be new to the boy or girl making it.

The best projects are usually done by those who develop their own ideas and materialize them after taking advantage of all the technical information available to them. Use library sources. Consult material in books or journals to discover what has been done already in the field selected.

Scientists obtain satisfaction in attempting to solve problems, even if results are often inconclusive and lead on to further experimentation. So it is with science projects such as those listed here. They are beginnings, not ends in themselves.

Each project will lead to more knowledge and appreciation of some phase of science. From such accomplishment will come the scientists, engineers and informed citizens who will remake the future.

INDEX

AGRICULTURE (GENERAL) — S

AGRICULTURAL CHEMISTRY. AGRICULTURAL CHEMICALS ... 76
DESERTS. ARID LANDS. IRRIGATION ... 76
FARM ECONOMICS. FARM MANAGEMENT 76
FERTILIZERS AND IMPROVEMENT OF THE SOIL ... 76
METHODS AND SYSTEMS OF CULTURE. CROPPING SYSTEMS ... 76
SOIL CONSERVATION ... 76
SOILS. SOIL SCIENCE ... 76
  Analysis and Experiments ... 76
  Soil Chemistry ... 76

ANIMAL CULTURE — SF

BEE CULTURE ... 80
CATTLE. HORSES ... 79
FEEDS AND FEEDING. ANIMAL NUTRITION ... 79
LABORATORY ANIMALS ... 79
POULTRY ... 79
VETERINARY MEDICINE ... 80

ANTHROPOLOGY — GN

PHYSICAL ANTHROPOLOGY. SOMATOLOGY ... 4
PREHISTORIC ARCHAEOLOGY ... 4

AQUACULTURE. FISHERIES. ANGLING — SH (page 80)

ARCHITECTURE — NA

ARCHITECTURAL ACOUSTICS ... 5

ASTRONOMY — QB

ASTRONOMICAL INSTRUMENTS ... 12
ASTRONOMICAL PHOTOGRAPHY ... 13
ASTROPHYSICS (GENERAL) ... 13
COSMOGONY. COSMOLOGY ... 15
DESCRIPTIVE ASTRONOMY ... 13
  Comets ... 14
  Meteorites ... 15
  Meteors ... 15
  Moon ... 14
  Planets ... 14
  Solar System ... 13
  Stars ... 15
  Stars - Galaxies. Nebulae. Clusters ... 15
  Sun ... 13
GEODESY ... 13
NON-OPTICAL METHODS OF ASTRONOMY 13
  Radio Astronomy ... 13
PRACTICAL AND SPHERICAL ASTRONOMY ... 13
  Time ... 13
THEORETICAL ASTRONOMY AND CELESTIAL MECHANICS ... 13

BIOLOGY (GENERAL) — QH

CYTOLOGY ... 39
  Aging of Cells ... 40
  Cell Membranes. Liposomes ... 40
  Chromosomes ... 40
  Effect of Physical and Chemical Agents on Cells ... 41
  Methods of Research ... 39
  Mitochondria ... 40
  Physical and Chemical Properties ... 40
  Physiological Properties ... 40
  Protoplasm. Cytoplasm ... 40
ECOLOGY ... 39
  Influence of Special Factors in The Environment ... 39
EVOLUTION ... 36
GENETICS ... 37
  Cytoplasmic Inheritance ... 38
  Genetic Engineering ... 37
  Heredity and Environment ... 37
  Mutations ... 38
  Recombination Mechanisms ... 37
LIFE ... 39
REGENERATION ... 38
REPRODUCTION ... 38
SPACE BIOLOGY ... 37

BOTANY — QK

CLASSIFICATION ... 41
COLLECTING AND PRESERVATION ... 41
CRYPTOGAMS ... 41
  Algae and Algology ... 42
  Bryophyta. Bryology ... 41
  Fungi ... 42
  Lichens ... 42
  Musci. Mosses ... 42
  Pteridophyta. Ferns ... 41
PHYSICAL PLANT PHYSIOLOGY ... 43
  Chemical Agents Affecting Plants ... 44
  Growth ... 44
  Movements. Irritability in Plants ... 45
  Periodicity. Dormancy. Photoperiodism ... 45
  Physical Agents Affecting Plants ... 45
  Plant Cell and Tissues ... 43
  Reproduction ... 46
PHYTOCHEMISTRY ... 46
  Chemical Composition of Plant Body ... 46
  Metabolism ... 46
  Plant-Water Relationships ... 46
  Special Plant Constituents ... 47
PLANT ANATOMY ... 43
PLANT ECOLOGY ... 48
  Evolution of Plants ... 48
  Physiographic Regions ... 48
  Reproductive Interrelation ... 48
  Vegetative Interrelation. Phytosociology ... 48
POISONOUS PLANTS ... 41
SPERMATOPHYTA. PHANEROGAMS ... 41
  Angiosperms ... 41
  Gymnosperms ... 41
  Trees and Shrubs ... 41

BRIDGE ENGINEERING — TG
(page 83)

BUILDING CONSTRUCTION — TH

ARCHTECTURAL ENGINEERING. STRUCTURAL ENGINEERING OF BUILDINGS ... 83
HEATING AND VENTILATION ... 83
PROTECTION FROM FIRE. FIRE PREVENTION AND EXTINCTION ... 84

CARTOGRAPHY — GA
(page 3)

CHEMICAL TECHNOLOGY — TP

CEMENT INDUSTRIES - CEMENT. LIME. MORTAR. PLASTER ... 94
CHEMICAL ENGINEERING ... 93
  Apparatus and Supplies ... 93
  Special Processes and Operations ... 93
CHEMISTRY OF FIRE AND FIRE PREVENTION ... 93
CLAY INDUSTRIES. CERAMICS. GLASS ... 94
FERMENTATION INDUSTRIES. BEVERAGES. ALCOHOL ... 93
FOOD PROCESSING AND MANUFACTURE ... 93
FUEL ... 93
GAS INDUSTRY ... 94
MISCELLANEOUS ORGANIC CHEMICAL INDUSTRIES ... 94
OILS. FATS. WAXES ... 93
PAINTS. PIGMENTS. VARNISHES ... 94
POLYMERS AND POLYMER MANUFACTURE ... 94
REFRIGERATION AND ICEMAKING ... 93
TEXTILE BLEACHING. DYEING. PRINTING ... 94
UTILIZATION OF WASTES ... 94

CHEMISTRY — QD

ANALYTICAL CHEMISTRY ... 25
  Methods of Analysis ... 25
  Qualitative Analysis ... 25
  Quantitative Analysis ... 26
  Reagents. Indicators. Test Papers ... 25
  Technical Analysis ... 26
  Water Analysis ... 26
COMPUTER PROGRAMS ... 25
CRYSTALLOGRAPHY ... 33
  Chemical Crystallography ... 34
  Crystal Structure and Growth ... 33
  Geometric and Mathematical Crystallography ... 33
  Liquid Crystals ... 33
  Physical Properties of Crystals ... 33
INORGANIC CHEMISTRY ... 26
  Inorganic Synthesis ... 26
  Metals ... 27
  Nonmetals ... 26
  Salts ... 27
  Special Elements ... 27
ORGANIC CHEMISTRY ... 27
  Aliphatic and Aromatic Compounds ... 28
  Antibiotics ... 29
  Biological Chemistry ... 29
  Carbohydrates ... 28
  Miscellaneous Compounds: Special Groups ... 28
  Operations in Organic Chemistry ... 27
  Organic Analysis ... 28
  Organic Synthesis ... 27
  Polymers. Macromolecules ... 29
PHYSICAL AND THEORETICAL CHEMISTRY ... 29
  Atomic and Molecular Theory and Structure ... 29
  Atomic and Molecular Weights ... 29
  Complex Compounds ... 30
  Conditions and Laws of Chemical Reactions ... 30
  Electrochemistry. Electrolysis ... 32
  Electrolytic Cells. Electrode Phenomena ... 32
  Magnetochemistry ... 32
  Photochemistry ... 32
  Physical Properties in Relation to Structure ... 30
  Polarography ... 32
  Radiochemistry. Nuclear Chemistry ... 32
  Stereochemistry ... 30
  Surface Chemistry ... 31
  Theory of Solution ... 31
  Thermochemistry ... 31
STUDY AND EXPERIMENTS ... 25

DENTISTRY — RK

OPERATIVE DENTISTRY. RESTORATIVE DENTISTRY ... 75
ORAL AND DENTAL ANATOMY AND PHYSIOLOGY ... 74
ORAL AND DENTAL CHEMISTRY ... 74
ORAL AND DENTAL MEDICINE. PATHOLOGY. DISEASES ... 75
  Dental Caries ... 75
  Dental Deposits ... 75
  Diseases of the Supportive Structures of Teeth ... 75
  Examination. Diagnosis ... 75
ORTHODONTICS ... 75
PREVENTIVE DENTISTRY ... 74

DERMATOLOGY — RL
(page 75)

EDUCATION — L
(page 4)

ELECTRICAL ENGINEERING. ELECTRONICS. NUCLEAR ENGINEERING — TK

APPLICATIONS OF ELECTRIC POWER ... 86
  Mechanical Applications of Electrical Power ... 86
DISTRIBUTION OR TRANSMISSION OF ELECTRIC POWER ... 86
DYNAMOELECTRIC MACHINERY AND AUXILIARIES ... 86
ELECTRIC APPARATUS AND MATERIALS ... 85
ELECTRIC HEATING ... 86
ELECTRIC LIGHTING ... 86

- ELECTRIC METERS ... 85
- ELECTROACOUSTICS. ELECTROACOUSTIC TRANSDUCERS ... 87
- ELECTRONICS ... 87
  - Apparatus and Materials ... 87
    - Amplifiers, Antennas ... 87
    - Electron Tubes ... 88
    - Oscillators ... 88
    - Semiconductors ... 88
  - Applications of Electronics ... 88
  - Computer Engineering. Computer Hardware ... 89
  - Electronic Measurements ... 88
  - Microelectronics. Integrated Circuits ... 88
  - Microwaves ... 88
  - Photoelectronic Devices (General) ... 89
- NUCLEAR ENGINEERING. ATOMIC POWER ... 90
  - Nuclear Reactors ... 90
- PRODUCTION OF ELECTRIC ENERGY OR POWER ... 85
  - Production From Heat ... 85
  - Production From Waterpower. Hydroelectric Power Production ... 85
- PRODUCTION OF ELECTRICITY BY DIRECT ENERGY CONVERSION ... 86
  - Magnetohydrodynamic Generators ... 86
  - Production of Electricity Directly From Chemical Action ... 86
  - Solar Batteries. Solar Cells ... 86
  - Thermoelectricity (Applied) ... 86
- RADAR ... 87
- RADIO ... 87
- TELECOMMUNICATION ... 86
- TELEGRAPH ... 87
- TELEMETER SYSTEMS ... 85
- TELEPHONE ... 87
- TELEVISION ... 87

ENGINEERING (GENERAL) — TA

- ACOUSTICS IN ENGINEERING. ACOUSTICAL ENGINEERING ... 81
- APPLIED OPTICS. PHOTONICS ... 81
  - Applied Holography ... 81
  - Laser and Laser Applications ... 81
- ENGINEERING MATHEMATICS. ENGINEERING ANALYSIS ... 80
- HUMAN ENGINEERING ... 80
- MATERIALS OF ENGINEERING AND CONSTRUCTION ... 81
  - Metals ... 81
  - Nonmetallic Materials ... 81
  - Specific Characteristics of Materials ... 81
- MECHANICS OF ENGINEERING. APPLIED MECHANICS ... 80
  - Applied Dynamics ... 80
  - Applied Fluid Mechanics ... 80
- PLASMA ENGINEERING. APPLIED PLASMA DYNAMICS ... 82
- STRUCTURAL ENGINEERING (GENERAL) ... 81
- SYSTEMS ENGINEERING ... 80

ENVIRONMENTAL TECHNOLOGY SANITARY ENGINEERING — TD

- ENVIRONMENTAL POLLUTION ... 82
- INDUSTRIAL AND FACTORY SANITATION ... 83
  - Industrial and Factory Wastes ... 83
- NOISE AND ITS CONTROL ... 83
- SPECIAL TYPES OF ENVIRONMENT ... 83
  - Air Pollution and Its Control ... 83
  - Soil Pollution ... 83
- WATER SUPPLY FOR DOMESTIC AND INDUSTRIAL PURPOSES ... 82
  - Examination and Analysis ... 82
  - Qualities of Water. Water Quality ... 82
  - Saline Water Conversion ... 83
  - Sources of Water Supply ... 82
  - Water Pollution ... 82
  - Water Purification. Water Treatment and Conditioning ... 82
  - Water Reuse ... 82

FORESTRY — SD
(page 79)

GEOLOGY — QE

- DYNAMIC AND STRUCTURAL GEOLOGY ... 34
  - Geochemistry ... 35
  - Sedimentation ... 35
  - Volcanoes. Earthquakes. Seismology ... 35
- MINERALOGY ... 34
- PALEOBOTANY ... 36
- PALEONTOLOGY ... 35
  - Paleoecology ... 35
- PALEOZOOLOGY ... 36
- PETROLOGY ... 34
- STRATIGRAPHY ... 35

GYNECOLOGY AND OBSTETRICS — RG
(page 74)

HIGHWAY ENGINEERING. ROADS AND PAVEMENTS — TE
(page 83)

HISTORY: AMERICA (WESTERN HEMISPHERE) — E-F

- AMERICAN INDIANS ... 3

HOME ECONOMICS — TX

- COOKERY ... 96
- NUTRITION. FOODS AND FOOD SUPPLY ... 95
  - Animal Foods ... 95
  - Examination and Analysis. Composition. Adulteration ... 96
  - Preservation and Storage of Foods ... 96

HUMAN ANATOMY — QM

- HUMAN AND COMPARATIVE HISTOLOGY ... 58

HUMAN ECOLOGY. ANTHROPOGEOGRAPHY — GF
(page 4)

HUNTING SPORTS — SK

- WILDLIFE MANAGEMENT. GAME PROTECTION 80

HYDRAULIC ENGINEERING — TC
(page 82)

INTERNAL MEDICINE — RC

- DISEASES DUE TO PHYSICAL AND CHEMICAL AGENTS 71
- EXAMINATION. DIAGNOSIS 71
  - Radiography. Roentgenography 71
- INFECTIOUS AND PARASITIC DISEASES 71
- MEDICAL EMERGENCIES. CRITICAL CARE. INTENSIVE CARE 71
- NEOPLASMS. TUMORS. ONCOLOGY 71
  - Cancer and Other Malignant Neoplasms 72
    - Carcinogenesis 72
    - Therapeutics 72
  - Unspecified Neoplasms 71
- NEUROLOGY AND PSYCHIATRY. NEUROPSYCHIATRY 72
  - Drug Abuse. Substance Abuse 73
  - Neurology. Diseases of the Nervous System 72
  - Psychopathology 72
- PSYCHOSOMATIC MEDICINE 71
- SPECIALTIES OF INTERNAL MEDICINE 73
  - Allergy. Hypersensitivity 73
  - Diseases of the Blood and Blood-Forming Organs 73
  - Diseases of the Circulatory (Cardiovascular) System 73
  - Diseases of the Digestive System. Gastroenterology 73
  - Diseases of the Endocrine Glands 73
  - Diseases of the Genitourinary System. Urology 73
  - Diseases of the Musculoskeletal System 73
  - Metabolic Diseases 73
  - Nutritional Diseases 73
  - Other Diseases 73

LITERATURE ON MUSIC — ML

- PHILOSOPHY AND PHYSICS OF MUSIC 4
  - Acoustics and Physics 4
  - Ethics and Therapeutics 5

MANUFACTURES — TS

- CHEMICAL PROCESSING OF WOOD 95
- METAL MANUFACTURE. METAL WORKING 95
- PAPER MANUFACTURE AND TRADE 95
- TEXTILE INDUSTRIES 95
- WOOD TECHNOLOGY. LUMBER 95

MATHEMATICS — QA

- ALGEBRA 7
  - Abstract Algebra 7
  - Combinatorics. Combinatorial Analysis 7
  - Complex Numbers 9
  - Game Theory 9
  - Graphic Algebra 8
  - Linear Algebra 7
  - Linear Algebra. Matrices 7
  - Miscellaneous Elementary Topics 7
  - Rings 9
  - Set Theory. Transfinite Numbers 7
  - Theory of Equations 8
  - Theory of Groups 7
  - Theory of Numbers 8
  - Theory of Numbers. Fibonacci Sequence 8
  - Theory of Numbers. Primes 8
- ANALYSIS 9
  - Analytical Methods Used in the Solution of Physical Problems 10
  - Calculus 9
  - Differential Equations 10
  - Theory of Functions and Functional Analysis 9
  - Transformations 10
  - Vector Analysis 10
- ANALYTIC MECHANICS 12
- ELEMENTARY MATHEMATICS. ARITHMETIC 6
  - Addition. Subtraction. Multiplication. Division 6
  - Decimal System 7
  - Fractions. Square Roots 7
  - Numeration. Number Concept. Numeration Systems 6
  - Real Numbers 7
- GEOMETRY 10
  - Analytic Geometry 11
  - Descriptive Geometry 10
  - Differential Geometry 11
  - Elementary Geometry 10
  - Generalized Spaces 12
  - Hyperspace 12
  - Non-Euclidean Geometry 11
  - Projective Geometry 10
  - Special Topics in Plane Geometry 10
  - Topology 11
  - Trigonometry 11
- INSTRUMENTS AND MACHINES 5
  - Electronic Computers. Computer Science 5
- MATHEMATICAL RECREATIONS 6
- MATHEMATICAL STATISTICS 9
- NUMERICAL ANALYSIS 9
- PHILOSOPHY 5
  - General 5
  - Mathematical Logic 5
- PROBABILITIES 9
  - Stochastic Processes 9
- SERIES. INFINTE PROCESSES 9
- THEORY OF ERRORS. LEAST SQUARES 9

MECHANICAL ENGINEERING AND MACHINERY — TJ

- CONTROL ENGINEERING SYSTEMS. AUTOMATIC MACHINERY 84
- HEAT ENGINES 84
- HOISTING AND CONVEYING MACHINERY 85
- HYDRAULIC MACHINERY 85
- MACHINERY EXCLUSIVE OF PRIME MOVERS 85
- MECHANICAL DEVICES AND FIGURES. AUTOMATA. ROBOTS (GENERAL) 84

8

MECHANICAL MOVEMENTS 84
MISCELLANEOUS MOTORS AND ENGINES 84
PNEUMATIC MACHINERY 85
RENEWABLE ENERGY SOURCES 84
  Solar Energy 84
  Wind Power 85
STEAM ENGINES 84

MEDICINE (GENERAL) — R

BIOMEDICAL ENGINEERING. ELECTRONICS. INSTRUMENTATION 70

MICROBIOLOGY — QR

BACTERIA 65
  Antibiosis 67
  Morphology 65
  Physiology 66
    Environmental Factors 66
    Metabolism 66
    Nutrition and Growth 66
IMMUNOLOGY 68
  Antibodies. Immunoglobulins 69
  Antigen-Antibody Reactions 69
  Antigens 68
  Immune Structures 68
MICROBIAL ECOLOGY 67
MICROBIOLOGICAL CHEMISTRY 67
MICROORGANISMS IN THE ANIMAL BODY 68
MICROORGANISMS OF FERMENTATION 67
MICROORGANISMS OF PLANTS 70
MICROORGANISMS OF MICRO-ORGANISMS 69
  Bacteriophages 69
MYCOPLASMAS 70
PATHOGENIC FUNGI 69
PATHOGENIC MICROORGANISMS 69
TECHNIQUE 65
  Culture 65
VIROLOGY 70
  Effect of Environment 70
  Virus Function 70
  Virus Structure 70

MILITARY SCIENCE (GENERAL) — U
(page 96)

MINING ENGINEERING. METALLURGY — TN

DANGERS AND ACCIDENTS IN MINES AND QUARRIES 92
METALLURGY 92
  Metallography. Physical Metallurgy 92
  Metallurgical Plants 92
  Metallurgy of Ferrous Metals 93
  Metallurgy of Nonferrous Metals 92
NONMETALLIC MINERALS 93
  Coal 93
  Natural Gas 93
  Petroleum. Petroleum Engineering 93
ORE DEPOSITS AND MINING OF PARTICULAR METALS 92

MOTOR VEHICLES. AERONAUTICS. ASTRONAUTICS — TL

AERONAUTICS. AERONAUTICAL ENGINEERING 90
  Aeronautical Research 90
  Aircraft 91
  Flying Machines Other Than Airplanes 91
  Hovering 90
  Instruments 91
  Jet Propulsion 91
  Kites 91
  Mechanics of Flight Aerodynamics 90
  Miscellaneous Aspects of the General Subject 90
  Natural Flight 90
  Soaring 90
ASTRONAUTICS. SPACE TRAVEL 92
  Artifical Satellites 92
  Astrionics. Electronic Equipment on Space Vehicles 92
  Astrodynamics. Flight Mechanics. Cellestial Mechanics 92
  Electric Equipment on Space Vehicles 92
  Flights to Special Planets, Moon 92
  Life Support Systems. Human Engineering. Human Environment Equipment and Testing 92
  Model Rockets. Model Space Vehicles 92
  Space Navigation 92
MOTOR VEHICLES 90
  Cycles 90
  Design, Construction and Equipment 90
  Gasoline Automobiles 90
ROCKET PROPULSION. ROCKETS 91
  Fuel 91
  Special Topics 91
  Special Types of Rockets and Propulsion 91

MUSIC — M

INSTRUMENTAL MUSIC 4
  Electronic Music 4

MUSICAL INSTRUCTION AND STUDY — MT

COMPOSITION 5
  Forms 5

NATURAL HISTORY (GENERAL) — QH

MICROSCOPY 36
PHYSIOGRAPHIC DIVISIONS 36
  Water. Aquatic Biology 36

NAVAL SCIENCE (GENERAL) — V
(page 96)

OCEANOGRAPHY — GC

CHEMICAL OCEANOGRAPHY 3
DYNAMICS OF THE OCEAN 3
  Waves 3
MARINE POLLUTION. SEAWATER POLLUTION 3
MARINE RESOURCES. APPLIED OCEANOGRAPHY 3

- SUBMARINE TOPOGRAPHY 3
- UNDERWATER EXPLORATION 3

OPHTHALMOLOGY — RE

- EXAMINATION. DIAGNOSIS 74

PARAPSYCHOLOGY — BF

- SPIRITUALISM 2
  - Telekinesis. Psychokinesis 2

PATHOLOGY — RB

- CLINICAL PATHOLOGY. LABORATORY TECHNIQUE 71
- MANIFESTATION OF DISEASE 71

PEDIATRICS — RJ
(page 74)

PHARMACY AND MATERIA MEDICA — RS

- MATERIA MEDICA 76
  - Pharmaceutical Chemistry 76
  - Pharmacognosy. Pharmaceutical Substances 76

PHOTOGRAPHY — TR

- APPLIED PHOTOGRAPHY 95
  - Geographical Applications 95
  - Scientific and Technical Applications 95
- CAMERAS 94
- CINEMATOGRAPHY. MOTION PICTURES 95
- COLOR PHOTOGRAPHY 95
- LIGHTING 95
- PHOTOGRAPHIC PROCESSING. DARK-ROOM TECHNIQUE (GENERAL) 95
- PHOTOMECHANICAL PROCESSES 95
- SENSITIVE SURFACES 94
- THEORY OF PHOTOGRAPHIC PROCESSES IN GENERAL 94
- TRANSPARANCIES. DIAPOSITIVES 95

PHYSICAL GEOGRAPHY — GB

- GEOMORPHOLOGY. LANDFORMS. TERRAIN 3
  - Coasts 3
  - Islands 3
  - Other Natural Landforms 3
  - Slopes 3
- HYDROLOGY. WATER 3
  - Ground and Surface Waters 3

PHYSICS — QC

- ACOUSTICS. SOUND 17
  - Analysis of Sounds 18
  - Instruments and Apparatus 17
  - Propagation of Sound 17
  - Sound Waves 17
  - Ultrasonics 17
  - Underwater Acoustics 17
  - Vibrations 17
- ATOMIC PHYSICS. CONSTITUTION AND PROPERTIES OF MATTER 16
  - Field Theories. Unified Field Theories 16
  - Quantum Theory. Quantum Mechanics 16
  - Relativity Physics 16
  - Special Properties of Matter and Antimatter 17
  - Theories of Gravitation 17
  - Thin Films 17
- DESCRIPTIVE AND EXPERIMENTAL MECHANICS 16
  - Dynamics 16
  - Fluids. Fluid Mechanics 16
- ELECTRICITY AND MAGNETISM 20
  - Electricity 20
    - Electric Current 20
    - Electric Discharge 21
    - Electric Oscillation and Electric Waves 21
    - Electrodynamics 21
    - Electrostatics 20
    - Instruments and Apparatus 20
    - Plasma Physics. Ionized Gases 21
  - Magnetism 21
  - Nuclear Magnetism 21
  - Special Types of Magnetism 21
- GEOMAGNETISM 23
- GEOPHYSICS. COSMIC PHYSICS 23
- HEAT 18
  - Change of State 18
  - Heat Transfer 18
  - Thermodynamics 18
  - Thermometers and Thermometry 18
- METEOROLOGY. CLIMATOLOGY 23
  - Aeronomy 23
  - Aqueous Vapor 24
  - Atmospheric Shells (General) 24
  - Aurora 24
  - Climatology and Weather 24
  - Dynamic Meteorology 23
  - Electrical Phenomena in the Atmosphere 24
  - Meteorological Instruments 23
  - Meteorological Optics 24
  - Paleoclimatology 24
  - Radio Meteorology. Microwave Meteorology 24
  - Technique. Methods of Observation 23
  - Temperature and Radiation 24
  - Wind. Storms. Cyclones 24
- NUCLEAR AND PARTICLE PHYSICS. ATOMIC ENERGY. RADIOACTIVITY 22
  - Elementary Particle Physics 22
  - Instruments and Apparatus 22
  - Nuclear Fusion 22
  - Nuclear Interactions 23
  - Radioactivity and Radioactive Substances 23
- OPTICS. LIGHT 18
  - Geometric Optics 19
  - Holography 19
  - Optical Instruments and Apparatus (General) 18
  - Photometry. Microphotometry 19
  - Physical Optics 19
  - Spectroscopy 19
- RADIATION PHYSICS (GENERAL) 20
  - Color 20
  - Luminescence 20
  - Other Radiations 20
  - X-Rays. Roentgen Rays 20
- WEIGHTS AND MEASURES 15

PHYSIOLOGY — QP

- ANIMAL BIOCHEMISTRY ... 62
  - Organic Substances ... 62
    - Carbohydrates ... 64
    - Enzymes ... 62
    - Hormones ... 62
    - Lipids ... 64
    - Miscellaneous ... 64
    - Nucleic Acids ... 63
    - Pigments ... 64
    - Proteins. Amino Acids ... 62
    - Vitamins ... 64
- BLOOD ... 58
  - Blood Groups ... 60
  - Composition and Chemistry ... 59
  - Erythrocytes. Red Blood Cells ... 59
  - Leucocytes. White Blood Cells ... 59
  - Plasma and Serum ... 60
  - Platelets ... 59
- CARDIOVASCULAR SYSTEM. CIRCULATION ... 60
- EXPERIMENTAL PHARMACOLOGY ... 64
  - Toxins. Venoms. Poisons ... 65
- GLANDS ... 60
- HEART ... 60
- METABOLISMS ... 60
- MUSCULOSKELETEL SYSTEM. MOVEMENTS ... 61
- NEUROPHYSIOLOGY AND NEUROPSYCHOLOGY ... 61
  - Brain ... 61
  - Nervous System ... 61
  - Senses. Sensation. Sense Organs ... 61
    - Chemical Senses ... 61
    - Cutaneous Senses ... 61
    - Hearing ... 62
    - Vision ... 62
- NUTRITION ... 60
- PHENOMENA OF ANIMAL LIFE (GENERAL) ... 58
  - Developmental Physiology ... 58
  - Influence of Environment (General) ... 58
- PHYSIOLOGY OF THE DIGESTIVE TRACT. DIGESTION ... 60
- PHYSIOLOGY OF THE TISSUES (GENERAL) ... 58
- REPRODUCTION ... 61
- RESPIRATION. RESPIRATORY ORGANS ... 60
- SECRETIONS ... 61

PLANT CULTURE — SB

- FIELD CROPS ... 77
  - Forage Crops. Feed Crops. Grasses. Legumes ... 77
  - Grain. Cereals ... 77
- FLOWERS AND FLOWER CULTURE. ORNAMENTAL PLANTS ... 78
- FRUIT CULTURE AND ORCHARD CARE ... 78
- GARDENS AND GARDENING ... 78
- LANDSCAPE GARDENING. LANDSCAPE ARCHITECTURE ... 78
- PESTS AND DISEASES ... 78
  - Pest Control and Treatment of Diseases ... 79
  - Plant Pathology ... 78
  - Weeds. Parasitic Plants ... 78
- PROPAGATION ... 77
- SEEDS ... 76
- SOILESS AGRICULTURE. HYDROPONICS ... 77
- VEGETABLES ... 77

PSYCHOLOGY — BF

- AFFECTION. FEELING. EMOTION ... 2
  - Emotion ... 2
- APPLIED PSYCHOLOGY ... 2
- CONCIOUSNESS. COGNITION. PERCEPTION. INTUITION ... 1
  - Association and Reproduction of Ideas ... 1
  - Attention. Apperception ... 1
  - Creative Processes. Imagination. Invention ... 1
  - Intelligence. Mental Ability. Intelligence Testing. Ability Testing ... 1
  - Reactions. Reaction Time-Learning ... 1
  - Thought and Thinking. Psycholinguistics. Psychology of Meaning ... 2
  - Time. Space. Causality ... 2
- DEVELOPMENTAL PSYCHOLOGY ... 2
  - Adolescence. Youth ... 2
  - Child Psychology ... 2
- EXPERIMENTAL PSYCHOLOGY ... 1
- THE HAND ... 2
  - Palmistry. Chiromancy ... 2
- MOTIVATION ... 2
- PERSONALITY ... 2
- SOCIAL PSYCHOLOGY ... 1

PUBLIC ASPECTS OF MEDICINE — RA

- FORSENIC MEDICINE ... 71
- PUBLIC HEALTH. HYGIENE. PREVENTIVE MEDICINE ... 70
  - Environmental Health ... 70
  - Epidemics. Epidemiology ... 71
  - Food and Food Supply in Relation to Public Health ... 71
  - Other Subjects of Public Health ... 71
  - Transmission of Disease ... 70
- TOXICOLOGY ... 71

RAILROAD ENGINEERING AND OPERATION — TF

(page 83)

SCIENCE (GENERAL) — Q

- CYBERNETICS ... 5

SOCIAL SCIENCES — H

(page 4)

SURGERY — RD

- ANESTHESIOLOGY ... 74
- EMERGENCY SURGERY. WOUNDS AND INJURIES ... 74
- SURGERY BY REGION, SYSTEM OR ORGAN ... 74
- TRANSPLANTATION OF ORGANS. TISSUES ... 74

THERAPEUTICS. PHARMACOLOGY — RM

- ANTIBIOTIC THERAPY. ANTIBIOTICS 75
- DRUGS AND THEIR ACTIONS 75
- PHYSICAL MEDICINE. PHYSICAL THERAPY 75

ZOOLOGY — QL

- ANATOMY 56
- ANIMAL BEHAVIOR 56
  - Navigation 57
  - Psychology. Intelligence. Learning 57
  - Seasonal Habits. Periodicity 57
  - Social Relations. Animal Societies 57
  - Voice. Communication 57
- CHORDATES. VERTEBRATES 54
  - Birds 55
  - Fishes 54
  - Mammals 55
    - Carnivora 55
    - Chiroptera 55
    - Edentata 55
    - Evolution 55
    - Lagomorpha 55
    - Primates 55
    - Rodentia 55
    - Ungulata 56
  - Reptiles and Amphibians 54
- COLLECTING AND PRESERVATION 48
- EMBRYOLOGY 57
- INVERTEBRATES 48
  - Arthropoda 51
    - Arachnida 52
    - Blattaria 52
    - Coleoptera 54
    - Crustacea 51
    - Diptera 52
    - Ephemeroptera 52
    - Hemiptera 52
    - Homoptera 52
    - Hymenoptera 54
    - Insects 52
    - Isoptera 53
    - Lepidoptera 53
    - Myriapoda 52
    - Odonata 52
    - Orthoptera 52
    - Trichoptera 52
  - Brachiopoda 50
  - Coelenterata 49
  - Echinodermata 49
  - Mollusca 50
  - Porifera 49
  - Protozoa 48
  - Worms and Other Vermiform Invertebrates 50

* *

PSYCHOLOGY — BF

SOCIAL PSYCHOLOGY

Psychological Effects of Interracial Facial Differences
Does Apparent Social Standing Affect One's Returning an Easily Returned Object?
Psychological Factors Involved in the Urban Drift

EXPERIMENTAL PSYCHOLOGY

Motor Ability of Young Children
Only Child Versus Child From Large Family as to Motor Ability
A Statistical Study of the Psychology of Humor
Pupillometrics: Attitude and Pupil Size
Human Behavior: Familiarity Breeds Comfort
Study in Human Conceptual Behavior
A Computer Model for Population Behavior
Computer Controlled Multifunction Pigeon Behavioral Analysis Laboratory: Hardware and Software
Behavior Altering Effects of Drugs on Spiders
Behavioral Observations in a Game Influenced Environment
A Study of the Effects of Crowding on Human Behavior

CONSCIOUSNESS. COGNITION. PERCEPTION. INTUITION

Rhythm in the Id
Effect of Various Types of Background Sounds on Study

Reactions. Reaction Time-Learning

Sleep-Learning vs. Day-Learning
A Computer Simulation of the Learning Process
Determination of Chemically Transferred Learning Through Experimental Analysis
Operant and Conditioned Learning Using Reinforcement Stimuli
Deprivation of Visual Imagery and Its Relation to Child Learning Processes
Synthetic Adaptive Trial and Error Learning
Comparative Effects of Positive Verbal Reinforcement on Achiever and Underachiever Groups
Comparison of the Learning Abilities of Rats
Three-Year Study of Fetal Auditory Imprinting
Learning and Extinction in *Carassius auratus*
Verbalization and the Slow Learner
Teaching the Mentally Retarded to Teach the Mentally Retarded
Theory of Cognitive Dissonance
Retention Into Adulthood of Responses Conditioned in Mealworm Larvae
Discrimination Avoidance Conditioning in the Goldfish
Effect of Diet and Rest on Learning
Operant Conditioning
Retention of Conditioned Behavior in Insects Through Metamorphosis
DNA Code Transfer of Conditional Responses in Platyhelminthes
Investigation of the Learning Mechanism Involved in Generalization on Visual Patterns
Electronic Versus the Natural Way of Learning

Attention. Apperception

Effect of Subliminal Advertising on Humans
Responses to Thematic Apperception Tests
Effect of Concentration on Visually Induced Subliminal Learning
Subliminal Perception and Its Impact on Human Responses
Study of Subliminal Stimulation
Effects of Mental Distractions on Human Reaction Time in Response to Sound

Association and Reproduction of Ideas

Application of Hand Movement in the Process of Character Recognition
Simplification of Character Recognition by Use of Square Matrices
Effect of Color Upon Recognition Threshold
Effect of Color Grounding on Math and Word Recognition Skills of Right-Brained Students
Retention of Spatial Images
The Effects of Colors and Word Ordering on Memory
Memory: Can It Be Enhanced by Supplementary Sensory Aids?
Influence of Age on Eyewitness Testimony Among School-Aged Youth
Studies on the Rate of Forgetting
Associative Learning From Relative Environmental Data
Association Coordination-Learning

Creative Processes. Imagination. Invention

Interrelationship Between Creativity, Visual Perception and Cerebral Preference
Correlational Similarities Between Creative and Analytical Thinking in Gifted Students
Relationship of Creativity to Intelligence and Achievement

Intelligence. Mental Ability. Intelligence Testing. Ability Testing

Effects of Age on Perceptual Problem-Solving Performance Involving Color
Relationship Between Preferred Cognitive Style and Academic Achievement and Interests
Effects of Birth Order on Grade Point Average
The Role of I.Q. and Personality in the Piagetian Model of Learning
Effects of Reinforcement and Punishment on the I.Q. Test Scores of Third Grade Children
Discovery: Increases I.Q.
Correlations of the Intelligence Quotient and Memory Tests
Can Intelligence be Increased?
A Test Grading Machine Utilizing Computer Principles
Application of a Digital Computer to an Original Objective Test Grader

Thought and Thinking. Psycholinguistics. Psychology of Meaning

A Three-Way Comparison: Audio, Visual and Graphic Modes of Reading Comprehension in Grammar School Children
Comparative Analysis of Conscious Thought Pattern Responses to Select Stimuli

Time. Space. Casuality

The Size and Effects of Invasion of Personal Space
Human Speech Patterns With Prognosis for Psychological Correlation
Analysis of Statistics on the Autokinetic Effect

MOTIVATION

Relationship Between Achievement Motivation and the Quality of Sibling Relationships
An Application of Individualized Contingencies and Management to the Behavioral Process of Motivation
Measurement of Motivation
Drive as a Function of Activity
Change in Attention Span With Respect to High or Low Motivation to an Unrelated Central Stimulus

AFFECTION. FEELING. EMOTION

Emotion

Can Emotionality Resulting from Maternal Factors During Infancy be Modified by Clinical Therapy?
A Study of Fears
Prejudice and Insecurity

APPLIED PSYCHOLOGY

Effect of Competitive-Induced Failure on Rationalization and Emotional Response
A Computer Program for Finding and Quantifying Biological Rhythms
Circadian Biological Clock and Its Effect on Human Mental Efficiency
Use of Behavior Modification in Establishing Verbal Behavior in the Mentally Retarded

PERSONALITY

The Relationship Between Color Preferences and the Dominance-Submission Personality Trait

DEVELOPMENTAL PSYCHOLOGY

Child Psychology

Can the Psychological Effect of a Touch-Surrounded Environment Improve the Academic Performance of Children?
Personal Space in Children: Development and Personality Correlations
Eidetic Imagery: Kids See the Darndest Things
Determination of Active Imagination in Children in the Kindergarten Grade Level
Diagnostic Test for Cognitive Development
Effects of Play Therapy on the Aggressive Tendencies of Children Characterized by Elements of Overt Aggression
Development of Digit and Spatial Spans in Small Children
Effects of Different Types of Music on the Artistic Creativity of Seven Year Olds
Influence of Age and Sex on the Color Preference of Children
Correlation Between Left-Handedness and Speech Impairment
Cultural Differences in Newborn Development
Comparison of the Closest Sibling Relationship With Other Important Relationships
Effects of Early Experience on Emotional Development
A Proposed Screening Test: Investigation of Children's Drawings
Limiting Factors in Four Year Olds' Problem Solving
First, Last or Middle Child: The Differences
Does the Mother Factor During Infancy Affect Growth and Behavior in Maturity?
Mathematical Learning Theory: Concept Identification and Problem Solving

Adolescence. Youth

Effects of Frequent Environmental Change on Grade Point Average of High School Seniors
Teenage Dating Problems
Color's Effect on Teenagers' Preferences of Fruit Juices
Teenagers: Dilemmas, Feelings, and Problems - Who Can Help?

THE HAND

Palmistry. Chiromancy

A simplified Method of Fingerprint Classification Adaptable to Computers

PARAPSYCHOLOGY - BF

Role of Subject Cognitive Ability as a Criterion Condition for Parapsychological Studies
Effects of Hypnosis on Heart Rate and Blood Pressure
ESP: Fact or Fantasy
An Experiment in Parapsychology
Statistical Analysis of Tests Given to Determine Presence of Extrasensory Perception
Variations of the Dream Cycle

SPIRITUALISM

Telekinesis. Psychokinesis

Experimental and Theoretical Aspects of Psychokinesis

HISTORY: AMERICA (WESTERN HEMISPHERE) — E-F

AMERICAN INDIANS

Archaeological Study of the Indian Tribes of Chowan County, North Carolina
Evidence of Prehistoric Indian Occupation Along the Upper Roanoke River
Indications of Indian Presence from a Surface Site in Northwest Indiana
Archaeological Investigations of the Diegueno in the Jacumba Mountains
The Woodland Indian
Evidence of Indian Activity in a South Plains Area as Shown by Indian Artifacts
Excavation of an Indian Campsite
Archaeological Investigation: Excavation and Interpretation of Prehistoric Indian Trash Pit
Correlation of Two Sundance Formation Areas
Analysis of Caucasian-Christian Influence at West Des Moines Indian Burials
Indian Relics Tell a Story

CARTOGRAPHY — GA

Relief Map of the United States
Effective Modeling of Meandering Rivers

PHYSICAL GEOGRAPHY — GB

GEOMORPHOLOGY. LANDFORMS. TERRAIN

Energy Zone Mapping in the Alpine Tundra
Landforms of North America

Slopes

Study of Slope Failures in the Palos Verdes Hills
Roots: The Dynamic Balance

Coasts

Composition and Distribution of Sand Particles on Sandy Beach, Oahu, in Relation to the State of the Tide
Direction of Sand Transport Caused by the Longshore Current on Second Beach in the Surf Zone
Pebble Distribution on a Cobble Beach at Sachnest Point, Rhode Island
Testing the Efficiency of Groins Compared to Breakwaters in the Prevention of Shoreline Erosion
Formation of Beach Cusps
Deterioration of Beaches Due to Wave Action

Islands

Island Formations

Other Natural Landforms

The Bog Phenomenon
Some Biological and Physical Aspects of a Mangrove Swamp
Conservation of Swamp Lands
Sagnes-Rouges: Reconstruction of the History of a Bog
Comparison and Correlation of Paleocene Bogs
Mechanics of Sand Dune Formation
Growing Dunes
Limestone Caverns of Southeastern New Mexico
Cave Formations

HYDROLOGY. WATER

Ground and Surface Waters

The Five Liffeys: The Evolution of a River System
A Study of the Verdigris River Sediment
A Watershed
Formation of a Meandering Stream
Young, Mature, and Old River Valleys
Profile of a River
Formation of an Oxbow Lake
Some Ways in Which Lakes are Formed
A Marginal Lake
Finger Lakes of Western New York
Lake Formed by a Fault
The Origin of the Great Salt Lake

OCEANOGRAPHY — GC

UNDERWATER EXPLORATION

Oceanographic Research via Remote Controlled Underwater Probe

SUBMARINE TOPOGRAPHY

A Method of Making Three-Dimensional Maps of the Ocean Floor

CHEMICAL OCEANOGRAPHY

Mass Transfer of Ions Versus Diffusion in Marsh and Ocean Substrates

DYNAMICS OF THE OCEAN

Waves

Effects of Different Types of Waves on a Model Beach

MARINE RESOURCES. APPLIED OCEANOGRAPHY

Using the Ocean's Thermoclines to Produce Energy

MARINE POLLUTION. SEAWATER POLLUTION

Mercury in Arctic Ocean Sediment
Use of Magnetism in the Removal of Oil Spilled on Waterbodies
Hydra Reaggregation: Assay to Predict Teratogenic Hazards Induced by Environmental Toxicity
Biodegradation of Oil Spills
A Physical Approach to Offshore Crude Oil Spill Recovery

Proposed System for Containing Oil Spills With Polymer Foam
Effect of Environment on Sanitary Conditions of Marine Waters

HUMAN ECOLOGY. ANTHROPOGEOGRAPHY — GF

Prediction of Man's Effect on the Carbon Budget of the Biosphere Through Computer Simulation

ANTHROPOLOGY — GN

PHYSICAL ANTHROPOLOGY. SOMATOLOGY

A Critique of Physical Anthropology
Skulls
Forensic Anthropology via Computer

PREHISTORIC ARCHAEOLOGY

Modern Analysis of Ancient Tools
Archaeology: A Site Study of Concord Township
Prehistoric Habitation Sites Along the Plum Creek Watershed
Paleoenvironment of the Casper Formation at Horse Creek, Laramie County, Wyoming
Selected Mound and Mesoamerican Motif Parallels
Archaeological Survey of Northern Los Alamos County on the Pajarito Plateau
Importance of Prehistoric Houses in Settlement Archaeology
Archaeology: Report on Rodgers Site
Experimental Archaeology
What is an Artifact?
The Mystery of Stonehenge
Significance of Anasazi Petroglyphs and Pictographs
Tools and Weapons of Ancient Man
The Making and Use of Primitive Tools
Dating Flint Artifacts
A Study of Egyptology
Proving the Existence of Prehistoric Man in Central Carver County
Evidence of Early Human Life in a Bluff on the Osage Fork

SOCIAL SCIENCES — H

Computers for the Social Scientist
Population Explosion: Can We Manage?
Crowding, Cortisone and Death
A Study of Solid Waste Created by a Family of Four
An Ideal Urban Center
Underwater Cities: Homes of the Future

EDUCATION — L

The Feasibility of Creating a Universal Language Based on Sign Language
School Plant Design

MUSIC — M

INSTRUMENTAL MUSIC

Electronic Music

Computer Music
Music Generation With the PDP-8/E Minicomputer
A Study on a Novel Electronic Music Synthesizer
The Design, Prototyping and Construction of the Music Computer
An Additive Music Synthesis Device With Video Feedback
Basic Circuit for an Electronic Organ
A Projected Improvement in the Electronic Organ
Design and Construction of an Electronic Saxophone
Music: Computer Composition and Analyzation
Application of Computer Programming to Musical Composition
Electronic Selection of Musical Notes
Association of Color With Audiotones
Method of Approach to Problems of Electronic Musical Composition

LITERATURE ON MUSIC — ML

PHILOSOPHY AND PHYSICS OF MUSIC

Acoustics and Physics

Physics and the Sound of Music
Computer Analysis of Harmonic Structure of Music
Determination of the Degree of Consonance of Musical Intervals
Development of a New Class of Reed Instruments
Wood Effects on Piano Soundboards
Differentiation and Comparison of Consonant and Dissonant Musical Intervals Using Fourier Analysis and the Parseval Equality
The Physics of the Violin Back Plate
Factors That Determine the Tone Quality of a Violin
The Geometry of Music
Analysis of Bassoon Double Reeds
Factors That Influence the Tone Quality of a Violin
Control and Synthesis of Cyclic Waveforms for Music
Violin Principles
Experiments in the Science of Music
Mathematical Music: A New Scale
Reproduction of Musical Quality
Physics of Woodwinds
The Science of Music
Musical Scales: Their Formation and Use
A New Musical Instrument
Characteristic Overtones of the French Horn
Construction and Analysis of a Bass Clarinet in B-Flat
Music by a Flame

Ethics and Therapeutics

Physiological and Psychological Effects of Music on Humans
Effect of Various Types of Music Upon Human Brain Waves
Effect of Music on Students' Test Performance

MUSICAL INSTRUCTION AND STUDY — MT

COMPOSITION

Forms

Computer Sonata

ARCHITECTURE — NA

ARCHITECTURAL ACOUSTICS

A Design of a Room for Lecture Purposes With Computations of Reverberation
Acoustical Study of Tulsa Municipal Theatre

SCIENCE (GENERAL) — Q

Mysterious Faucet
Art in Science
Photography in Science
Egg and Bottle Experiment
Assembling a Small Home Lab
Development of an Idea Using a Scientific Method
The Properties of a String

CYBERNETICS

Artificial Intelligence in Game Playing
Demonstration of Artificial Intelligence
Robotics and Artificial Intelligence
Logic System: A Non-numerical System of Artificial Intelligence
Artificial Intelligence: Relative Learning Rates of Three Computer Programs
Approach to Artificial Intelligence Through Nerve Network Simulation
Cybernetic Logic for the Simulation of Rudimentary Human Senses and Reactions in Functional Locomotion
Intelligence in Machines
The Syllogistic Method and a Reasoning Machine
Thinking Machines and the Thought Behind Them
Cybernetic Simulation of Imagination and Related Thought Processes
Learning Process in Computers
Programming a Digital Computer to Learn
Simulation of the Creative Process and Its Role in Thought Production by Statistical Computer Circuitry
Use of Character String Subroutines in Information Handling

MATHEMATICS — QA

PHILOSOPHY

Aspects of Mathematics
Mathematical Theory of Scientific Explanations
Investigations in Mathematics
Original Method of Mathematical Notation
Closure in Mathematical Systems
Use of Mathematics to Communicate With Intelligent Extraterrestrial Life
Demonstration of Inadequacy of Induction in Mathematical Reasoning

General

Napier's Bones
The Calendar
Applied Mathematics in the Machine Shop

Mathematical Logic

Functional Completeness in a Generalized Logical System
Algorithms for Continued-Fraction Expansions of Surds
Complex Polynomial Algorithms
Symbolic Logic Proofs by Computer
Semantics for Model Logic
Constructive Algorithms for High-Precision Arithmetic
An Algorithm for the Systematic Analysis of a Maze
Algorithmic Approach to the Construction of Reversal Products
Algorithmic Analysis of Divisibility Between Integers
Logic and the Expectation Paradox
Truth Matrix and Its Application in the Development and Investigation of a Four-Valued Logic System
Empirical Study of Multivalued Logic
Three-Value Propositional Logic
The Existence of "May Be" in Classical Logic
Looping and Non-Looping Systems of Logic in Mathematics
Matrix for Symbolic Logic
On the Application of Logical Consistency to Physics
Set Theory With Applications to Symbolic Logic

INSTRUMENTS AND MACHINES

A RATFOR Compiler and Logic Analyzer
Design and Construction of a Logic Calculator
A Device for Solving Quadratic Equations
Mechanical Differential Analyzer
Inclined Protractor
Progressive Studies in Electrical Mechanical Machines With Special Application to the Solving of Ciphers
Chinese Abacus
Profit and Loss Rack
An Electromechanical Calculator
Surveying Transit
Building a Planimeter
The Slide Rule: Its History and Operation

Electronic Computers. Computer Science

LEAST: A Computer Program for Generalized Curve Fitting
Digital Computer Simulation Program

Digital Computer Using Medium-Scale Integration Circuitry
Mathex: Computer Programming Language That Handles Equations
Computation of Pi and e by Electronic Computer
High Precision Arithmetic Computation Using Microcomputers
Computer Program for Algebraic Manipulations
Coordinate Plotting Utilizing BASIC Computer Programming
Computer Simulation of Complex-Logarithmic Conformal Mapping of Visual Patterns
Algorithmic Conversion of Flowcharts to Computer Programs
Design of an Electronic Programmable Calculator
Construction of a Digital Computer System and Its Application to the Study of Boolean Algebra and Probability
APLSIMUL: A Simulation Based Universal 16-bit Microprocessor Software Development System
Computer Graphic Solutions to Various Mathematical Puzzles
HP-R1C Program for Finding Real and Complex Roots of Higher Order Polynomials
Software Link for Dissimilar Computers
The Analysis and Development of Bionic Computational Devices
Microcomputer Controlled Digital Waveform Analyzer
An Algorithm for Computer Simulation of Machine Recognition of Human Speech Phonenes
Modulus and Conditional-Sum Addition in Computer Operation
Prime Factorizations and Computer Applications
Computer Investigation of the Properties of Finite Number Systems
Principal and Construction of a Digital Computer for the Solution of Quadratic Equations
An Application of Monte Carlo Mathematics
3-Way Roulettes
Digital Determination of the Maximum Latitude for a Minor Circle Turn
Approximation to Euler's Constant by Probability Theory and Random Numbers Applied to High Speed Electronic Computer
Computer Analysis
High Speed Computer Investigation Into Prime Pairs
Binary Computer to Find Square Root
Computer Research in the Algebra of the Fibonacci Series
Electronic Character Recognizer Which Performs Simple Arithmetic Computation
Programmed Chess
Binary Computer Logic System
Binary Switches
Design for a Digital Computer
The Flip-Flop Building Block of the Digital Computer
A Binary Computer Programmed by Teletype
Digital Relay Integrator, Numerator and Calculator
A Binary Digital Computer With Decision-Making Abilities
Comparison of Electronic and Electro-Mechanical Binary Computers
The Correlation Computer
An Analog Computer for Determining Formation Boundary Orientation From Standard Dipmeter Curves
Mathematical Derivation for a Sequential Switching Circuit
The Continuous Quotient Computer
Electronic Computer for Averaging Numbers (Avatron)
A Load and Go Fortran Compiler for a Small Digital Computer
An Original Computer Program for High School Scheduling
Problem Solving With Analog Computation
An Electronic Analog Computer for the Solution of Cubic Equations by Cardan's Formulas
Analog Plotting and Simulation
History, Analysis and Construction of Computers

MATHEMATICAL RECREATIONS

Perfect Magic Terreracts and Beyond
Mathematical Model of Anamorphic Art
How We Play Mathematics
Number of Wins in n-Dimensional Tic-Tac-Toe
Squaresville in Digital Addition
"Instant Insanity" Cubed
Codes and Cyphers
Checker-Playing Computer
A Computer at Monte Carlo
Mathematician's Karate
Mathematical Game Played by an Analog Computer
Formula for Measuring the Offensive Ability of a Baseball Player
Design, Construction and Operation of a Machine to Play "Sundorra 21"
Developing Three-Dimensional Geometric Visualization Through the Medium of Games
Polygon Games

ELEMENTARY MATHEMATICS. ARITHMETIC

Addition. Subtraction. Multiplication. Division

Numbers Plus Their Digital Sums in Base b
Sums of Arithmetic Sequences of the P-th Degree
Sums of Odd Composite Integers
Integers as Sums of Divisors of Greater Integers
Extensions of Arithmetic Operations
General Form of the Arithmetic Processes and Its Extension to the Process After Raising to a Power
Adder, Multiplier and Divider
An Arithmetic of Base Negative Two
Analyzing Some Relationships in Prime Modular Arithmetic

Numeration. Number Concept. Numeration Systems

Monotonically Increasing Sequence of Series Generated by the Binary System

On the Search for an Odd Perfect Number
Investigation of Numeration Systems With Negative Bases
Base-4: A Numeration System With a Negative Number as a Base
Excessive and Defective Numbers: The Relationship of a Natural Number and the Sum of Its Proper Divisors
A Finite Number System
Analysis and Application of Binary Numeration
Investigation of Odd Perfect Numbers
The Correlation of Number Systems
Discovery: Twenty-first Perfect Number
Isorational Number System
Experiments in Imbedded Numerals

Decimal System

Investigation of Periodic Decimals
Decimation
Patterns of Repeating Decimals
Evaluation of DeSua's Double Decimal System
Investigation of the Theories of Decimal Expansion
Decimal Values of Reciprocals of Integers Through Graphing

Fractions. Square Roots

A Convergent Sequence of Rational Approximation of the Square Root of n
Egyptian Fractions
An Arithmetical Method to Find the nth Root of a Number
An Investigation of the Coefficients and Derivatives of Functions Having One or Two Distinct Roots
Related Formulae for Finding the Square Roots of Positive Numbers
Convergence of Continued Fractions
Arranging of Fractions Between 0 and 1 in Ascending Order of Numerical Value
Simple Continued Fraction Representation of the Square Root of N
The Use of Continued Fractions in Taking Roots of Equations
Continued Square Roots

Real Numbers

Systems Isomorphic to the Real Number System With Subsets of the Real Numbers as Elements
An Expansion of the Real Number System to Include Division by Zero
Extension of Operations on Real Numbers

ALGEBRA

Miscellaneous Elementary Topics

Divisibility Observations for the Numbers Generated by $x^4 + 4A^4$
Factoring Very Large Numbers
Lower Bound for Odd Perfect Numbers With Eight Distinct Prime Factors
Recursive Technique for the Solution of Polynomials
Trinomial Expansion
An Algebraic Proof
Algebraic Method in Advanced Mathematics
An Investigation of the Derivation of Several Algebraic Inequalities
Approximations
Approximate Constructions
Patterns in the Coefficients of Binomial Expansion

Set Theory. Transfinite Numbers

Complete Sets of Digits
Methods of Generating Sets Having the Square-Cube Property
Transfinite Sets. Ordinalities and Cardinalities
Investigation Into the Set of Pseudo-Squared Numbers

Abstract Algebra

The Use of Boolean Algebra in Designing Character Generators
One-Step Determination of a Boolean Function
A Boolean Switchboard
General Rule for Solving a Class of Algebraic Problems
New Definitions for Algebraic Relations
Inquiry Into a Boolean Algebra With Three Computing Operations

Combinatorics. Combinatorial Analysis

Combinatorialized Polynomials
Bridging the Gap: A Combinatorial Analysis of a Problem About Selections
Combinatorial Theory: A Map-Folding Problem
Asymptotic Laws Governing Generalization of the Partition Function
Generation of Magic Squares and Magic Cubes
Invariance of Magic Properties of Magic Squares in Mod m
Permutation Structures on the Positive Integers
Asymptotic Theory of Partitions
Permutations in Card Shuffling
Properties of Some Bordered Magic Squares
Magic Squares
Factors Determining the Nature of Multiplication Tables for Permutations
Graph Theory

Theory of Groups

Cubik Math: A Computer Tutorial in Group Theory
Survey of Burnside's Problems for Groups
General Theory of a Group of Recurrent Sequences
Extension of Cyclic Group Properties and Their Set Compliments

Linear Algebra

Linear Algebra
A Linear Algebra With Sixteen Units

Linear Algebra. Matrices

Application of Quaternions to Rotations and Lorentz Transformations

Analysis of the Symmetric Group of Degree Four and Its Relationship to Eigenvalues
Quaternions
Matrix Inversion by Means of the Cayley-Hamilton Theorem
An Application Matrix Algebra to Symbolic Logic
Elementary Number Theory Properties of Matrices
Ciphering by the Use of Matrix Algebra

Theory of Equations

On an Efficient Method for Solving Absolute Value Equations
Solutions to Second Order Differential Equations Using Continued Fractions
Equations for Lagrangian Points
Symmetries and Generalizations of an Infinite Array of Nonnegative Integers
Symmetry in Equations
Theorems on the Roots of Equations
Difference Equations and Associated Functions
Solution of Equations in Integers
Determining the Equation of Nodal Lines
Investigation of Symmetry and Asymptotes of Algebraic Loci

Graphic Algebra

Graphs of Imaginary Values of Functions
Graphing Complex Roots of a Quadratic Equation in Two Variables

Theory of Numbers

Palindromical Number Theory
Distribution Theorems as Applied to Number Generating Functions
Construction, Analysis and Application of Modular Representations
The Properties of the Factorial Triangle
Hyposquare Root Expansion
Study of the Number of Divisors on an Integer
Dependent Triplets of Triangular Numbers
Investigation of Moduli Systems and Pascal's Triangle
Finding the Loop of a Positive Integer
Euler's Phi-Function: Totitives Explored
Relating Two Number Theoretic Functions
Exponential Diophantine Equations
Solution of Some Second Degree Diophantine Equations
Two Related Diophantine Equations
Relation Between Two Functions in Number Theory
Carmichael Numbers
Perfect Sequences: Properties and Approximations
Quadratic Residues in Gaussian Integers
Beta Numbers: A New Sequence of Numbers Used in Yielding the Sums of Powers of the First "N" Integers
Arithmetic Progressions in Sequences of Integers
A Uniformly Distributed Sequence and Its Generation of an Infinite Sequence of Unit Fractions
Investigation of the Triangular Number Sequence
Non-triangular Numbers and Other Complements of a Sequence
Fermat Numbers
Alternate Approach to Fermat's Last Theorem
Some Properties of Perfect Numbers
Bernoulli Numbers and Their Applications
A Study of Positive Integers With Positive Integral Powers
Theorems and Conjectures on the Frequency of Occurrence of Quadratic Residues
General Solution of a Linear Diophantine Equation for Three Variables
On Some Generalizations of an Interesting Diophantine Equation
Diophantine Analysis of an N-Dimensional Pythagorean Theorem
Two New Functions in Number Theory
Prime Solutions of a Diophantine Equation Class
On Fermat's Last Theorem and Related Ideas
Study of Abundant Numbers
Aspects of the Theory of Numbers
A Geometric Study in Number Theory
Investigation of the Theorem of Isochemites
Proof of a Mathematical Theorem on the Generation of Langford's Numbers

Theory of Numbers. Primes

Floating Primes
The Decomposability of Certain Integer Primes
An Analysis of Prime Number Sequences and Goldbach's Conjecture
Permutable Primes
Big Primes and Some Ways to Find Them
On the Properties and Enumeration of Superprimes
Wilson's Theorem and Prime Pairs
Elementary Proof of Prime Number Theorem
Method for Generation of Primes and Tests for Primeness of Mersenne Numbers
Numerical Sequence Which Yields Prime Numbers
An Investigation of the Twin Primes Problem
Investigation of the Highest Power of a Prime Contained in a Factorial as Related to Limits

Theory of Numbers. Fibonacci Sequence

Innovations of the Generalized Fibonacci Sequence and the Telescoping Method of Series Evaluation
Various Summations With the Farey Series and the Farey Series of Fibonacci Denominations
A Study of the Fibonacci Numbers Using the Euclidean Algorithm
Investigating the Sums of Fibonacci Numbers
Fibonacci Series in Growth Patterns of Nature
Relationship Between Factorials of Fibonacci Numbers and Fibonacci Factorials
Looking Within Fibonacci
Properties and Extensions of the Fibonacci Sequences
Fibonacci Series
On the Repetitive Nature of the Fibonacci Sequence
Fibonacci-Type Sequences With Continued Fractions

Flip Side of Fibonacci
The Fibonacci Sequence in Puerto Rican Flora

Rings

Group Ring of the Group of Order Two Over an Arbitrary Ring
Differentiable Functions of Rings With Certain Metrics
Two Applications of the Ring Counter as a Logic Control Element
Constructing a Mathematical Ring

Complex Numbers

Representations of the Complex Numbers Base 1+1
Natural Logarithms of Complex Numbers
Slide Rule for Complex Numbers
Bicomplex Numbers
Complex Exponents
Study of Algebraic Curves for All Complex Numbers

Game Theory

The Approximation of Infinite Games by Finite Games
QUBIC: A Game Theory Analysis
A Three-Dimensional Space "Game" Program
Application of Computer Techniques to Game Theory
Use of Game Theory to Determine Courses of Action
Application of the Theory of Games to the Game of Kalah

PROBABILITIES

The Berserkerroll: An Investigation of Recursive Probability Algorithms
Partitions of Pascal's Triangle
A Generalization of Pascal's Triangle
Determination of Geometric Cross Sections by Collision Probability
Proving Probability
Triangular Proof of the Law of Probability
An Affine Space Approach to Conditional Probability Systems
The Buffon Needle Problem
Series of Related Problems in Geometrical Probability
Mathematical Analysis of Batting Performance in the Game of Baseball
Probability of Cube-Octrahedron Dice

Stochastic Processes

Perfect Gaussian Integers
Stochastic Approach to the Theory of Irreversible Intramicellar Reactions
Properties of Markov Chains and Their Related Recursive Equations
Solution of the Generalization of a Classical Problem on Sums of Squares Involving Gaussian Integers

THEORY OF ERRORS. LEAST SQUARES

Least Squares Curve Fitting in a Symmetric Interval About the Origin
Polynomial of Best Fit by the Method of Least Squares

MATHEMATICAL STATISTICS

Median of a Random Variable
Elementary Random Number Generators
Statistical Analysis of "Random" Number Selection
A Mathematical Model for the Statistics of Randomness of Order
Generation, Analysis and Application of Random Numbers

SERIES. INFINITE PROCESSES

Properties of Generating Functions of Infinite Sequences
Comparison of Two Kinds of Infinity
Summation of the First m Integers Raised to the nth Power
Expressing Rationals as Sums of Reciprocals of Integers
Logical Analysis of Infinity and Infinite Set Theory
Summation of Sequences
Infinite Differences
Study of Infinity
Summation of Algebraic Series
Determination of nth Term of an Infinite Repeating Series
Investigation of Properties of Powers

NUMERICAL ANALYSIS

Convergence of Iterative Sequences

ANALYSIS

Ordered Behavior in Chaotic Regions

Calculus

Calculus of Finite and Infinitesimal Ratios
A Multiplicative Calculus
An Approach to the Derivative Without the Use of the Limit Concept
Extension of the Calculus of Finite Differences
Orbital Calculus
A Quasi Calculus
N-Point Tensor Calculus
Evaluation of Real Integrals by Means of Complex Residues

Theory of Functions and Functional Analysis

Construction and Analysis of Modular Representations
Special Relativity and Hyperbolic Functions
Finite Projective Geometries and Abelian Groups
Solutions to Modular Equations to the Second and Third Degrees
Properties of the Phi-Function

Conditions Under Which the Composition Functions P(Q(x)) and Q(P(x)) are Equal
A Hybrid Digital-Linear Circuit is Used to Speed Computerized Logarithm Computation
Automorphic Numbers
Cyclic Properties of Exponential Functions
A Characterization of Divisible Abelian Groups
Functions of an Imaginary Number Base
Investigation of Sets and Related Functions
Study of Composite Functions
A Study of Compound Exponents
Functions of Several Complex Variables
Hyperbolic Functions: Some Original Observations
Exponential Functions
Properties of Some Complex Equations in Four Variables

Differential Equations

Generation of an Infinity of Similarity Solutions to a Partial Differential Equation

Analytical Methods Used in the Solution of Physical Problems

A Method for Determining the Equivalence of Two Knots by a Combination of Group Theory and Crossover Analyzation
Soap Film Calculus
The Desargue Complete Sets of Orthogonal Latin Squares
Evaluation of Pi by the Use of Fourier Series
Points of Symmetry in Curves of Integral, Rational Polynomial Functions

Transformations

Isometric Transformation in N Dimensions
An Investigation of Periodic Linear Fractional Transformations
Group-Theoretical Considerations of Isomorphic Transformations of a Euclidean Space Onto Itself

Vector Analysis

Vector Analysis as Applied to Magnetic Fields
Vector Analysis in Multi-Dimensional Geometry
Studies in Vector Analysis
Vector Applications to Ratios in the Triangle

GEOMETRY

Elementary Geometry

Excursions Into Pythagorean Theorem
Generation Methods for Near and True Pythagorean Triples
Pythagorean Differences
Extremum Problem Concerning the Longest Diagonal of a Polygon
Pythagorean Theorem in Other Dimensions
Primitive Pythagorean Triangles
Equivalence Classes of Pythagorean Triples
Effects of Two Lines Intersecting in Two Points on Parallel Lines
Egyptians Used the Theorem of Pythagoras
Discovery and Proof of a Formula for Cubes
Trisection of an Angle

Special Topics in Plane Geometry

Lines Associated With the Triangle
Plane Hexagonal Geometry: An Experiment in Dimensional and Morphological Restriction
The Theory of Central Angles
On Mathematics and Applications of Spirographs
Practical Method of Measuring an Object's Absolute Curvature
Geometry of a Plane Circular Arc
Circle Designs
Curve Stitching
Exploration of the Effects of a Series of Modifications on an Axiom System
Axiomatic System for a Geometry Describing Motion
Dividing a Circle Into Any Number of Equal Parts
Congruent Polygons
The Golden Section in Nature
Associativity on Desargues-Satisfied Plane
Nine Postulates for Euclidean Geometry
Pseudopolyhedrons: A New Class of Geometric Figures
Theorems on Sets on a Plane
Solution of the Triangular Duel Problem and Its Generalizations
Mathematical Analysis of the Locus of Points on a Rotating Reuleaux Triangle
Linear Interpretation of the Angle
Experimental Geometry: Conics in Wax Paper
Relationships of Conic Sections With a Given Cone
Imaginary Conics
A Continuous Conic Section Generator: Study of the Conic Curves
Theory and the Circle
The Metric Circle
Generalizations of Circular and Hyperbolic Functions
A Practical Application of the Laws of Triangles
Polygon Family
Geometric Construction of Triangles
Exponents and Shapes of Curves
Curves of Constant Width
Wave Analyzer for Compound Distribution Curves
Investigation of the Trochoid Family of Curves
The Integral Right Triangle

Projective Geometry

Plane Projections of the Earth
What Makes Projective Geometry Different?
Pi$_r$: A Projective Plane?

Descriptive Geometry

Shape-Recognition of Two-Dimensional One-Edge Shapes Using Perimeter-Area Relations
An Analysis of Artistic and Geometric Forms on the Basis of Their Mathematical Qualities and Characteristics
Geometric Quilt: A Brief Study of Tessellations

Trigonometry

Generalized Trigonometric Functions and Spiral Trigonometry
A Computer Algorithm for Proving Trigonometric Identities
Generalizations of the Trigonometric Functions and Their Properties
Geometric Analogues of Trigonometric Inequalities
Optimization of Computer-Derived Trigonometric Functions
Extensions of Euler's Phi-Function
A More Generalized Trigonometry Based on a Unit Ellipse Rather Than a Unit Circle
Parabolic Trigonometry
Isosceles Trigonometry
A Unique Trigonometric System Based on a Unit Square
Minkowskian Trigonometry
Extending the Cosine and Derivative Functions

Analytic Geometry

Slopes of Sides of Polygons
N Degree Triangle: Beyond Pascal
Equalizing Property of Circles
Some Interesting Planar Packing Phenomena of Circles
Mensuration Formulae of Certain Hyperconics
Computerized Recognition of Conical Objects
Extended Altitudes, Angle Bisectors and Medians
Determination and Construction of Unicursal Figures
N-Dimensional Conic Sections
Tetrahedron: Circumscribing to the Nth
Conicology: Relationship of Conic Sections With a Given Cone
Quasi-Brocard Geometry
Relationships of Nagel Points and Spaces Within Polygons
An Analytic Approach to the Properties of Inscribed Parabolic Segments
Functions of the Diagonals of Regular Polygons
Applications of the Complete Triangle
Non-congruent Integer Triangle With Constant Perimeter and Related Ideas
The Simplex and Terreract
Higher Order Difference Triangles and Their Odd-Even Patterns
Experimental Verification of Geometric Theorems
Cylindric Projections and Their Applications
Definition Geometry
Application of Algebraic Principals to Geometry
An Elliptical Polar Coordinate System
Analysis of the Regular Polytopes
Development of a Group of Translations in a Hyperbolic Plane
Effect of the Degree of Curvature of a Hyperbolic Paraboloid on Its Strength
Biangular System of Coordinates
Bipolar Coordinates
Analytic Investigations of the Regular and Hyperarchimedean Polytopes
Polyfocoids: Ellipses With More Than Two Focal Points
General Theory of Cartesian Plane Coordinate Systems of Both Oblique and Rectangular Axes

Topology

Flexagons: The Hidden Face
Extending the Euler Line and Expanding the Euler Circle
A Method of Determining Alexander Polynomials of Infinite Classes of Knots
Analysis Situs: A Never Ending, Inside-Out World
Cloverleaf Knots: Do They Conform to Knot Theory?
Algebraic Investigation of Knots
Generalization of Zeitz's Theorem to N-Dimensions
A New Twist: Further Studies of the Moebius Band
A Generalization of Moebius Inversion
Relationship of Topology and Structural Inorganic Chemistry
Some Results in Fixed Point Theory
An Example of the Relation Between Differentiable Manifolds and Algebras of Real Functions
Geometry in a Spherical Manifold
Determining Equation of Complex Curved Surfaces in Space
A Topological Study of Paradromic Curves
Variations of the Moebius Strip and Other Problems of Topology
Topology in "N" Dimensions
Linear Topology of the Plane
Derivation of the General Formula for the Four-Hat Problem
Topology: Rubber-Sheet Geometry
Analysis of the Total Number of Twists Resulting From Cutting Any Order Moebius Band With Any Number of Cuts
Experiments in Topology
Approximate Curve Fitting
Complete Planar Graphs and the Four-Color Theorem
Solution of a Famous Eight-Color Problem and Its Generalizations

Differential Geometry

Computer-Assisted Investigation of the Intricate Geometry of Two-Dimensional Surfaces
The Geometry of Soap Bubble Configurations
An Investigation of Complex Involution
Bipolar Geometry
Production of Geometric Forms Without Mass
Rond Una-dilaterial Geometry
Geometric Series With Multiple Ratios

Non-Euclidean Geometry

Aspects of Two New Non-Euclidean Pre-Metric Spaces
Nonrelativistic Applications of Non-Euclidean Geometry

Regular m-Dimensional Figures in a Regular n-Dimensional Figure

Generalized Spaces

Extension of the Riesz-Frechet Theorem and Its Significance to Hilbert Space Theory
Algebraic Basis of Two-Dimensional Affine Geometry
Spatial Projection of Abstract Mathematical Systems
Aristotle Space: A Research Into the Logico-Projective Properties of a Pascal Table
Elementary Theorems in n-Space Geometry
Some Considerations Evolving From an Investigation of Multi-Dimensional Systems
Finite Geometry in the Modular Plane
Properties of an n-Dimensional Space and the Polytopes Which Fill the Space

Hyperspace

Visual Representation of Rotation in Four Dimensions
Five-Dimensional Imaging Approximation by Geometric Fractal Enhancement of Polyoptic Projections
Some Theorems on Edge Coloration of Polyhedra in Three and Four Dimensional Space
Extension of Tetrahedroid Numbers and Their Ultra-Volume Approximation Into Higher Dimensional Space
Differentiation and Integration of a Four-Dimensional System
A Four-Dimensional Geometry
Fourth-Dimensional Tetra-Quadric Surfaces and Their Applications
Development of Properties of the Regular Orthotope in a Space of 0 Dimensions to a Space of Four Dimensions

ANALYTIC MECHANICS

Numerical Analysis of Motion and Change With Respect to a Spherical Plane
Determination of Frictional Coefficients Through Changes in Angular Velocity
Functional Analysis of Standing Waves on Falling Columns of Water
Using a Pendulum as an Extremely Precise Accelerometer
Simple and Compound Pendulums: A Computer Simulation
Gyroscopic Precession
A Mathematical Analysis of an Upside-Down Pendulum
Pendulum Interaction: Computer Simulation of Harmonic Motion
Length of Ducci Function and the Search for Functions of Stability
The Development of a Small Self-Contained Payload Designed to Measure the Effect of Microgravity on Friction
Modeling Velocity Amplification in Nearly Elastic Collisions
Computerized Method of Aerodynamic Measurement and Analysis
Computational Fluid Dynamics
Numerical Modeling of Turbulent Wakes Behind Streamlined Bodies
A Two-Dimensional Numerical Simulation of Inertial Waves Produced by an Obstacle Submerged in a Deep Rotating Fluid
Mathematical Analysis of Periodic Waveforms
Frictional Losses of an Autoregulated Magnetic Suspension
Numerical Experiment: Vibrations and Rotations of Water
Energy Loss of Actual Stream Caused by Air Friction
Steiner's Problem
Catenary Curve and the Suspension Bridge
Mathematics of the Suspension Bridge
Analysis of the Double-Strung or Lissajous Pendulum

ASTRONOMY — QB

Development of a Solar Observatory System
Scale Model of the Solar System
Tin Can Planetarium
A Place for the Amateur in Astronomy
Speculations in Astronomy
Aim for a Star
Planetarium for Home Use
A Home Stellarium
Building an Observatory

ASTRONOMICAL INSTRUMENTS

Design of an Automated Photoelectric Photometry System for Studying Pulsating Variable Stars
Solar and Celestial Research Using a Superheterodyne Phase-Switching Radio Interferometer
The Modification of a Dobsonian Mounted Telescope
Off-Axis Astronomical Telescope
The Construction, Operation and Analysis of a Microprocessor Monitored Cosmic Ray Telescope
Design for a Microcomputer Steerable Telescope Mounting
Ultralightweight Portable Reflecting Telescope
Computer Analysis and Design of a Two-Element Catadioptric Lens System for Astronomical Use
Construction and Use of a Six-Inch Newtonian Reflector in a Photographic Study of the Moon
Null Testing for the Paraboloidal Telescope Mirror
How the Telescope Works
Problems Encountered in Grinding a Ten-Inch Mirror for a Telescope
Construction of Plastic Telescope Mirrors
Factors Affecting the Resolving Power of a Telescope
Electronic Astronomical Spectrum Analyzer
An Experimental Solar Telescope
Parabolic Mirror Making
Astrophotography With a Six-Inch Richest Field Telescope

The Mathematical Aspects of Amateur Telescope Making
Construction and Operation of a Six-Inch Reflecting Telescope
Theoretical Investigation of the Oblique Telescope
Rotating Fluids and Their Application to Rapid Construction of Parabolic Telescope Mirrors
A Long Focus Planetary Reflector of New Design
The Eclipsograph
Is Tin Can Astrophotography Practical?
Astro-Camera and Telescope
Designing a Photoelectric Photometer and Its Use in Amateur Astronomy

ASTRONOMICAL PHOTOGRAPHY

Application and Evaluation of Techniques and Materials in Lunar, Planetary and Stellar Photography
Lunar Photography
Celestial Photography
Studies on Exposure Times in Astrophotography
Spectral Photography
Amateur Astrophotography
Exposure Time and Limiting Magnitude in Astrophotography

PRACTICAL AND SPHERICAL ASTRONOMY

Parallax With Applications in 3-D Computer Imagery

Time

The Spectrochronometer: The Development of a Monochromatic Sundial
Modern Gnomonics
Time Travels West
Star Clock
Time Throughout the Centuries
Sundial and Sundial Works
The Nature of Time

GEODESY

Vector Solution to the Resultant Gravitational Pull of Stars on the Solar System
Improving on the Pendulum
Scientific Application of a Computer: The Measurement of g
On Geodetic Graphs
Measurement of Earth's Gravitational Acceleration at 37 Degrees Latitude
Quantum, Gravitational and Relativistic Considerations of the Ultimate Gravitational Singularity of the Universe
Dynamics of Coupled Pendulums as Analog of Compound Nucleus Reactions
Model to Illustrate Gravitational Force Variations
Newton's Constant
Acceleration of Gravity
Determination of the Acceleration of Gravity
The Seconds Pendulum
Foucault Pendulum
Free Falling Bodies
Simple Determination of Gravity Constant
Forward Motion and the Acceleration of Gravity
The Pocket Watch Pendulum
Which Way is Up?
Dependence of the Period of a Simple Pendulum on Variations in Amplitude

THEORETICAL ASTRONOMY AND CELESTIAL MECHANICS

Orbit of Pallas: A New Modified Laplacian Method of Orbit Determination
Computer Simulation of the Many-Body Problem of Celestial Mechanics
Eclipses and Physical Properties of the Galilean Satellites
Analysis of Tidal Forces and the Close Approach Trajectories of Celestial Bodies
The Life-Support Potential of Binary Star Systems
Predicting the Position of a Small Body in Orbit
Using Quasar Distances to Test the Big Bang Theory

ASTROPHYSICS (GENERAL)

Spectrography of Selected Extra-Galactic Objects

NON-OPTICAL METHODS OF ASTRONOMY

Radio Astronomy

Analysis of Type One Solar Radio Emissions
Radio Mapping With the "VSA" (Very Small Array)
Celestial Radio Emission in the 68 cm Region
Detection of Radio Waves From the Sun by Means of a Coherer

DESCRIPTIVE ASTRONOMY

Solar System

The Solar System
Reasons for Seasons

Sun

Magnetohydrodynamic Effects on Sunspot Convection
Solar Spectroscopy: Analyzing the Color of the Sun
Variance of the Sun's Angular Velocity via Measurements of Sunspots
Relationship Between a Sunspot's Distance From the Solar Equator and the Rotation Period Involved
The Solar Spectrum and Analysis
Photometric Analysis of Sunspot Phenomenon in the .8 - 1.1μm Infrared Region
Effect of Sunspot Activity on Ham Radio Communications
Rate of Rotation of the Sun
Observations of Polarized Solar Radio Waves at 26MHz
A Computer Simulation of a Static Solar Corona

- Detection of Solar Flares by Ionospheric Excitation
- Some Interesting Relationships Between World Temperature and Sunspot Number
- Sunspot Activity and Electromagnetic Propagation
- Coronal Fields and Lower Atmospheric Influences
- A Characteristic Study of Solar Granulations
- Calculation of a Solar Eclipse: Algorithm Development, Computer Simulation, Field Verification
- 3.743 Megahertz Propagation During a Total Solar Eclipse
- A New, Improved Dual-Axis Solar Tracking Unit
- Spectral Line Structure of the Sun's Surface
- Correlation Between Solar Phenomena and Solar Radio Output
- Effect of Sunspots on Weather
- Eclipse of the Sun
- Candlepower of the Sun
- Genesis by the Sun
- An Investigation of Solar Energy
- Relationship Between Specific Solar Disturbances and Their Effect on the Earth
- A Correlation Between Sunspots and Faculae
- Measuring the Surface Temperature of the Sun With Liquid Crystals
- Study of Solar Phenomena at Various Wavelengths
- Studying the Solar Atmosphere
- Short-Term Variations in Solar Activity
- Determination of the Atmospheric Mass Absorption Coefficient in Three Portions of the Solar Spectrum
- Data Determined Relative to Solar Synchrotron Radiations at 432 Megacycles
- Possible Correlation Between Weather Conditions, Sunspots and Auroral Displays
- Geomagnetically Trapped Solar Stream Forms With a Laboratory Model
- Microwave Investigation of the Sun

Moon

- Analysis of Short Term Deviations in Lunar Motion
- Spectroscopic Survey of the Lunar Topography
- The Mean-Life of the Moon
- Changes in the Lunar Periodicity as Shown by Mississippian Corals
- The Relationship Between Crater Floors and Ejectas on the Lunar Surface
- Lunar Statistical Analysis
- How to Compute a Lunar Eclipse
- Search for a Correlation Between Lunar Transient Phenomena and Areas of High Subterranean Radioactivity
- Eclipse of the Moon
- Study of the Moon's Orbit
- Determination of Lunar Orbital Radius
- Lunar Surveillance
- The Shape of the Other Side of the Moon
- Possible Origin of the Moon's Craters
- Measurement of Lunar Craters and Mountains
- Method for Determining the Roughness of Lunar Areas

Planets

- Determination of the Mass of Saturn From the Orbital Motion of Its Satellite, Rhea
- Classification of Asteroids Through Infrared Spectrophotometry
- Investigation of the Effects of Planetary Position on Solar and Geological Activity
- Differentiation of Jupiter's Io and Non-Io Related Radio Emissions
- Gravitational Effects of Planetary Conjunctions
- Effect of Solar Wind Velocity on the Decametric Radiation From Jupiter
- Consequence of Accidental Bio-Contamination of Martian Environment via Terrestrial Intrusion
- Measuring Jupiter's Mass
- Very Faint Asteroids
- Orbit Determination of the Minor Planet, Eleonora
- Tangential and Centripetal Accelerations of Planets in Elliptic Orbits
- Chemical Evolution on Jupiter: Effects of Hydrogen Concentration on Organic Synthesis in Simulated Jovian Atmospheres
- Design and Construction of an Astronomical Mono-Chromator for the Detection of Structural Detail in the Jovian Atmosphere
- An Analysis of 21MHz Radio Emissions From Jupiter
- Thermochemical Model of the Formation of the Terrestrial Planets
- Planetary Angular Motion and Secondary Satellite Phenomena
- Martian Phenomena: Chemical or Biological?
- Is There Life on Mars?
- Detecting Microbes on Mars
- An Analytical Study of a Martian Phenomenon
- Planet Jupiter and the Sunspot Cycle
- Jupiter Calling
- Measurement of Jupiter's Equatorial Diameter
- Investigation of the Relationship Between Radio Waves From the Sun and Radio Waves From Jupiter
- Jupiter: Surface Currents
- Demonstration of Planetary Motions Using an Analog Computer
- Clues to the Origin of Planet's Markings
- Effect of the Sun on the Atmosphere of the Planet Jupiter
- Research on the Radial System of Venus
- A Colorimetric Study of Phase Anomalies in Respect to the Planet Venus
- Spot Cycles of Jupiter and Saturn
- A Visual Survey of the Long Term Atmospheric Changes of the Planet Saturn
- Life of a Planet
- Finding Distances to Superior Planets by Observations
- A Study of Asteroids
- Computer Determination of the Orbital Elements of Asteroid 386
- The Planets and Their Satellites
- Relation of the Planets to the Sun

Comets

- Effects of Phases on the Integrated Magnitudes of Comets

Meteors

Observational Information Used in the Determination of the Origin of Meteor Showers
Rules Governing Meteor Showers Derived From Photographic Observations
Studies of Meteors
Meteor Detection
The Geminid Meteor Shower
Recording of "Shooting Stars"

Meteorites

A Qualitative Analysis of Impact Crater Formation
Analysis of Crater Distribution on Mars and Mercury to Determine the Origin of Crater Forming Meteorites
Dispersal of Meteoric Impact Energy
Collection and Analysis of Meteorite Dust

Stars

Method of Determining Orbital Characteristics of Binary Star System Sirius A and B
Chromospheric Activity in Late-Type Spectroscopic Binary Stars
A Rationale and Probability for Interstellar Communication
Stellar Structure and Hydrodynamics
Measuring Binary Stars With Diffraction-Grating Micrometer
Quasar 3C273 and Gravitational Lenses
Photoelectric Study of Delta Cephei
Determining the Distance to the Variable Star Delta Cephei by Means of the Period-Luminosity Relation
Experimentation With Stellar Magnitude Using Photographic Photometry
A Spectroscope to Measure Changes in the Radial Velocities of Cepheid Variables
System for Generating Color Excess Curves of Early Type Stars
The U Geminorum Star EY Cygni and V839 Cygni, a Probable Eclipsing Star
A Computer Model of Stellar Structure
Light Curve Comparison of Long Period Variables S. T. Ursae Majoris
Infrared Search for Young Stellar Objects
Cepheid Variable Stars to Determine Distance
Determination of the Parameters of the Close Binary Star System RZ Scuti
Reflection Effect in Close Binary Star Systems
Visual and Near-Infrared Photoelectric Photometry of Four RS CVn Type Spotted Variable Stars
Spectro, Photometric and Photographic Analysis of Young Stars in Stellar Nurseries
A Model of Stellar Interiors by Computer Simulation
Stellar Structure
Stars over Washington
Photoelectric Photometry of BV 267 Auriga
Light Curves of Eclipsing Binary Stars
Period of Variable Stars
Four Year's Study of Variable and Exploded Stars
Three Semiregular Variable Stars
Photographic Study of Variable Stars
Investigation of the Nature of Two Different Kinds of Variable Stars by Observation and Interpretation of Their Light Variations
Stellar Spectroscopy
Stellar Evolution
Radius Relations of Stellar Bodies
Polytropic Approximation to Stellar Structure
Stellar Internal Conditions
Color Indexes of Stars
An Attempted Verification of a Stellar Polarization-Mechanism Theory
Paradox of the Beta-Persei Systems
General Mathematical Model of a Zwicky Humason Star
A Study of the Variable Star Delta Cephei

Stars - Galaxies. Nebulae. Clusters

Microcomputer Simulation of the Galaxy
Shape of the Milky Way Galaxy and Earth's Position In It
Nature of the 3.28 Micron Spectral Band Emission in Planetary Nebula NGC 6369
Properties and Distribution of the Galaxies in the Local Group
Spectral Photography of Selected Nebulae
Semi-Periodic Variations in the Nebular Variables
Numerical Approximations of Very Small Star Clusters
Extinction in the Dark Nebula Lynds 1295
Use of Color Filter Photography in Determining the Characteristics of Open Clusters
Analysis of Characteristics in Three Emission Nebulae
Spiral Galactic Structure and Self-Propagating Star Formation
Star Distribution in Galactic Clusters
An Analysis of the Galaxy and Its Relation to Astronomy
Configurations and Relative Intensities of Magnetic Field in the External Galaxies
A Classification of Extragalactic Nebulae
Investigation of the Galactic Structure in the Solar Neighborhood by Means of Galactic Clusters
Visual Magnitudes of Extended Nebulous Objects

COSMOGONY. COSMOLOGY

On the Nature of a Finite Cosmology
Collision Annihilation Theory: A Mathematical Model for T=0 and the Evolving Universe
The Expanding Universe: A Solution to Einstein's Field Equations
Theory of the Antiuniverse
Some Current Topics of Cosmology
Fusion Theory of the Universe
A Study in Cosmology With an Eight-Inch Cassegrainian Telecope

PHYSICS — QC

WEIGHTS AND MEASURES

Measuring Molecules Using the Langmuir Molecular Film Balance

New Approach to Determine the Viscosity of Normal Liquids
Eureka! A Novel Method for Measuring Gas Molecular Weight
Comparison of an Optical Goniometer and a Goniometer Incorporating a Laser
Development and Application of an Automated Flame Photometer
Weight of an Atom
The Moisture Meter
Measurement of the Thickness of a Soap Film
Homemade Balance
Making a Balance
Specific Gravity of a Rock
Specific Gravity of Wood Samples
Hydrostatic Scales

DESCRIPTIVE AND EXPERIMENTAL MECHANICS

Why? Physics Tells Why
An Investigation Into an Energy Analogous Quantity
Analogous Mechanical and Electrical Systems
Original Work Concerning Rotational Squares
Reciprocating Masses
Experimental Methods of Verifying Force
Yo-Yo Physics
Proof of the Laws of Motion
Conservation of Momentum
m/M = T/t (Gears)
Illustration of Newton's Second Law of Motion
The Six Simple Machines
Types of Pulleys
Simple Machines Do Help
Mechanical Advantage of Pulleys
The Classes of Levers

Dynamics

Induced Modifications to the Vibrational Mode of an Aluminum Bar
Congruence in Terms of Motions
Dynamics of the Boomerang

Fluids. Fluid Mechanics

The Physics of Splash
Transitional Location and Laminar Extension in a Heated Boundary Layer
Turbulent and Laminar Flow
Visometric Properties of Polymer Resins in Dilute Solutions
Thermal Separating Effect of a Forced Vortex as Exhibited by the Vortex Tube
Hydrodynamics Applied to Yacht Keel Efficiency
Study of Newtonian and Non-Newtonian Fluids
Raindrops Falling on a Dry Surface: A Computer Simulation
Law of Buoyancy
Archimedes' Principle
The Rise of Bubbles
Expansion of Warm Air
Expansion of Gases
Fluid Flow Analysis
Law of Flotation
Hydrometer
The Cartesian Diver
Curvature of Droplets
Original Investigaton Into the Splashing of Liquid Droplets
Formation and Study of Splash Patterns on Sooted Slides
Vortexes in Liquids Draining From Tanks
Study of Water Wave Motions
Streamline Flow of Water Jets
Deriving a Formula for Determining the Depth in Water at Which the Human Body Loses Its Positive Buoyancy
Effects of Temperature Differentials Within a Water System on an Ascending Stream of Fluid
Acceleration of Fluid Particles in a Centrifugal Pump Impeller
Variables Affecting Laminar Stream Stability
Investigating Wave Phenomena
Relationship Between Fluid Velocity and the Coanda Effect
Determining Flow Velocities of Solids in Suspension

ATOMIC PHYSICS. CONSTITUTION AND PROPERTIES OF MATTER

Relaxation Periods of Molecules
Multivariate Computer Analysis of Maxwell's Equation of State for Ideal Gases
Experimental Determination of Dipole Moments
Evaluation of Molecular Forces in the Two Component System of Paradichlorobenzene and Biphenyl
Some Suggestions on the Nature of Matter
Causes of Variations of the Atomic Density of Metals

Relativity Physics

Theoretical Considerations of Galilean Relativity
Spirally Orienting the XY Axis to Correspond to Time and Motion
Theory of Relativity: Special Consideration and Unification
Study of Relativity as Connected With the Phenomena of a Diffusion Cloud Chamber
General Relativistic Theory Concerning the Relations Between Time and Macro- and Microscopic Physics
Apparent Motion
Hypothesis of Compound Classical Special Relativity Embodying Vectors
Appearance of a Cube Moving at High Velocity
Relativity Car
Relative Speeds of Moving Objects as Determined by Varied Equations

Field Theories. Unified Field Theories

A Unified and Quantitized Field Theory

Quantum Theory. Quantum Mechanics

Application of Carbon Dioxide Laser in the Demonstration of Quantum Mechanics
Computer Uses in Wave Mechanics

Symmetry and Non-symmetry of Time Phenomena in Quantum Field Theory
Surface Representation and the Accurate Display of Quantum Mechanical Wave Functions
Quantum Mechanical Perspectives of the Hydrogen Atom
Quantum Mechanical Theory of Electrons in a Cosine Potential and Its Applications to Simple Metals
A Computer Study of Hydrogenlike Wave Functions
Wave Form Demonstrator
Computer Graphic Techniques for Plotting Quantum Mechanical Systems in Solid State Physics

Thin Films

Columnar Microstructure Growth of Thin Metal Films Obtained During Vapor Deposition
Laboratory Analysis of the One-Dimensional Spread of Oil in Calm Conditions and Under the Influence of Wind and Waves
Monomolecular Films on Glass

Theories of Gravitation

A Spin-2 Theory of Gravity
The Quantum Nature of Gravity
Meniscus Effect in Fuel Storage Tanks at Reduced or Zero Gravity
A Definition of "Particle" With a Suggested Relationship to Gravitation
A Simulated Gravitational Field

Special Properties of Matter and Antimatter

Effects of Input Energy on the Surface Tension of Liquids
Strength of Ice Composites
On the Form of Two- and Three-Dimensional Soap Bubbles
Elastic Properties of Solids Containing Voids
Surface Tension Relationships of Aromatic Lipids
The Magnetic Effect on Surface Tension in Soap Film
An Analysis of Surface Tension-Temperature Curves
Liquid Beads on Liquid Surfaces
Minimal Surfaces and Soap Bubble Films
Floating Drops on an Oscillating Surfactant Solution
Investigation of the Brownian Movement
How Tense is Surface Tension?
Determination of Energy Barriers to Viscous Flow
Effect of Concentration of Aqueous Ions Upon Surface Tension of Water
Resilience in Balls

ACOUSTICS, SOUND

Instruments and Apparatus

Electro-Optical Communicator for Transmitting Sound Modulation via Sunlight (Modified)
Microprocessor-Based Sound Analysis
Experiments With an Acoustic Lens
Tone Generator
Sound Wave Motion Machine
Investigations of Focusing Probes Using Transverse Sound Waves
Electronic Measurement of Sonic Velocities
Echo Location Device
Electrothermal Ionic Flame Loudspeaker
Flame Audio Reproducer

Propagation of Sound

Transmission and Reflection of Sound Through Partitions
Multichannel Audio Transmission Through Multiplexed Infrared-Fiberoptic Links
Simultaneous Transmission of Two Audio Signals Over a Common Carrier Frequency
Generating Complex Waveforms for Simulating Speech
Variation of the Speed of Sound With Temperature and Humidity
Determining the Travel of Sound Waves in a Whispering Gallery
Effect of Different Frequencies on the Volume of Sound After Being Reflected Around a Circle
Binaural Acoustical Location
Perception by the Propagation of Sound Waves
Experimentally Determining the Velocity of Sound
Speed of Sound

Vibrations

Bending Vibrations in Resonant Scattering Theory
Experimental Determination of the Effects of Temperature on the Pitch of a Stretched String
Use of Thermal Energy in Sound Production
Sonic Shake Table
Mechanics of the Vibrating String
Sound Resonance

Underwater Acoustics

Designing and Building Experimental Sonar
Sound Navigation and Ranging Sonar
Principals of Sonar

Sound Waves

Studies on Theory and the Propagation of the Audio Frequency Wave
Acoustical Analog to Double Slit Interference Phenomena
Shock Wave Models Explaining Unusual Breakage Pattern of Rigid Objects
Properties of Sound as Applied to the Development of the Theory for the Acoustical Modulation of Light
Sound Eradication

Ultrasonics

Mapping of Heat Rise Within an Ultrasonic Beam

USCAN IV: An Ultrasonic Collision Anticipator for Automobiles
Development of an Ultrasonic Imaging System
Ultrasonic Proximity Detector
Effect of Ultrasound on the Hydrolysis of Tert-Butyl Bromide in Acetone Media
The Effects of Ultrasound on Chemical Reaction Rates
What is Ultrasound?
Ultrasonics: Principles and Applications
Effect of Ultrasonic Radiation on Decomposition Reactions
Viscous Grain Structure Changes With Ultrasonic Sound
Experimental Communication With Ultrasound

Analysis of Sounds

Acoustical Analysis of a Corrugated Pipe
Acoustic Detection of Shadow Band Phenomena
Determination of Relative Effectiveness of Sound Intensity Compared to Sound Pressure Measurements in Improving Signal to Noise Ratio
Aural/Visual Tone Discrimination
Effects of High-Pitched Sounds
Interpretation of Simultaneous Sound
Effect of Heat on Sound
Experiments in the Study of Sound
Crystalline Sound
Ionic Sound Reproduction
Sonic Determination of Solution Concentration
Sound Analysis and Synthesis

HEAT

Thermometers and Thermometry

Design and Construction of a Thermocouple and Its Utilization in Determining the Freezing Time of Given Quantities of Water From Given Temperatures
Thermocouple
An Electrical Pyrometer
The Thermopile

Change of State

Investigation of the Energy Loss in a Rolling Inelastic Collision
Evaporation Has a Cooling Effect

Thermodynamics

Thermodynamics of a System in Relative Motion
The Joule Effect: How It Works and How to Put It to Work
Heating and Cooling Rates of Reflectors and Absorbers in a Gaseous Envelope
Change in Conductivity of Water During a Solid to Liquid Phase
Transmission of Energy
Vapor Pressure and Thermodynamic Properties of Normal Liquids
Experimental Determination of Planck's Constant
Second Law of Thermodynamics
Effect of Temperature on Resistance
A Thermodynamic Analysis of a Reversible Phase Change
Mechanical Equivalent of Heat
Research on Self-Suspended Liquids Over Hot Surfaces
The Dual Nature of Heat
Investigation of the Behavior of Vacancies During Temperature Change
Heat Gained=Heat Lost

Heat Transfer

Radial Heat Conduction
The Motion of Heat Waves
Periodic Temperature Distribution in a Conducting Bar With Time Variant Boundary Conditions
Heating and Cooling Rates of Reflectors and Absorbers in a Simulated Atmosphere
Interferometric Study of Air in the Vicinity of a Heated Object
Thermal Conduction Through Dual Glazed Windows
Corona Enhance Heat Exchange
Apparatus to Show Convection
Effect of Heat Dissipation by an Electromagnetic Field
Temperature Rise in a Solid Exposed to Thermal Radiation
A Study of Heat Transfer in Porous Media
Relation of Conductivity of Various Compositions of Glass to Temperature
Heat, Expansion and Absorption of all Matter
Analysis of Factors Affecting Energy Transfer Efficiency in an Exploding Bridgewire System

OPTICS. LIGHT

Compact Radial Detection of Light
Preliminary Optical Survey
An Investigation of the Cause of the Coloration of Quartz
Invisibility of Light
Black Light
Physics of the Eye
Glass and Light
Various Kinds of Light
Effect of Oscillation on Angles of Reflection of a Quartz Crystal

Optical Instruments and Apparatus (General)

Design and Building of a Variable Split Beam Spectrophotometer
Accommodating Gaseous Deionization Requirements: Development of an Ultra High-Speed Stroboscope
Use of Ferric Oxyhydroxide Colloids as Kerr-Like Media in Nonlinear Optical Systems
Homemade Optical Instruments
Principle of the Periscope
How a Periscope Works
Stroboscope and Velocity
Light Waves Transformer
A Light Intensity Meter
Comparative Analysis of Incandescent and Laser Light Sources in a Schlieren Optical System

A Polarizing Retroreflecting Prism
An Instantly Variable Three-Dimensional Real Image Spatial Display
Optimizing the Heat-Trap: An Ideal Far Infrared Optics System
Designing and Building a Spectrophotometer that Scans the Visible Spectrum
Computer Controlled Light Sensing Device
Design and Construction of an Optical Tape Reader Using Primary Colors
Achieving High Efficiency in a Photostrobe
Application of Guided Optical Waves to Level Sensing
The Construction and Practical Use of a Monochromator and Polarimeter
Results and Analysis of the Skipping Stone Phenomenon With Stroboscopic Photography
One-Mirror Schlieren Optic System that Eliminates Coma
Development of an Inexpensive System for the Transmission of Digital Data Over Optical Fiber
Uses of Schlieren Optics
Improved Schlieren Apparatus

Geometric Optics

Predicted Paths of Light Rays in Polygons
Calculation of Refractive Indices of Organic Liquids
Optics of the Ellipse With Emphasis on Parallel Incident Rays
Experiments With Light Rays
A Study of Light and Lenses
Reflection Box
Illusion Box
Measuring Image Distance
Principles of Bifocal Lens
Reflection of Light Rays
Angle Mirror
Measurement of the Refraction Index of Liquids by Means of a Flexible Lens

Photometry. Microphotometry

Development and Application of a Fiberoptic Photometer
Photometer

Physical Optics

Demonstration of Light Pressure
Communication via Fiber Optics
Interferometry and the U-V Plane
Examination of the Diffraction Patterns of Fibers
Optical Communications Utilizing Pulse Position Modulation
Transmission Characteristics of Light Through Glass
Michelson Interferometer With Differential Hydraulic Mirror Movement System
Speed of Light in BiVO$_4$
Wavelength Isolation Using Birefringent Polarization
Experimental Demonstration on the Quantum Nature of Light
How Single-Mode, Polarization-Holding Fibers Would Perform in Space
Light Frequency Determination Through Experimental Investigations of the Fresnel Diffraction Postulates
Polarized Light
Experimental Investigation of a Polarization Effect
Effects of Polarization on Single Slit Diffraction
Measurement of Dielectric Constant by Resolution and Analysis of Elliptically Polarized Waves
Particle Nature of Light
Experimental and Theoretical Study of Light
Research on Light Quanta
Light: Waves or Matter
Determining the Velocity of Light
Determining the Index of Refraction of a Solid From Its Solution by Means of the Michelson Interferometer
KWR Theory of Light Interaction
New Concepts in Wave Theory
Interferometer to Find the Index of Refraction of Air
Frequency Doubling of Light

Holography

Microscopic Holography
Holography: The Computer Memory of the Future
Construction of a Tunable Krypton Laser for Holographic Experimentation
The Effects of Triethanolomine Concentrations on the Color of Holograms
Practical Application of Holographic Interferometry
Latent Image Decay in Reflection Holograms
Holographic Approach to Interference Microscopy
Laser Holography: Stress Patterns and Multiple Images
Holographic Recordings on Low Resolution Photographic Emulsions
Biomedical Application of Holographic Nondestructive Testing
White Light Holography on Ordinary Film
Holographic Interferimetric Study of the Surface Deformations of an Object Subjected to a Point Load
Electron Holography Demonstrated by Light Diffraction
Moire Holography
Multiple Wavelength Holography

Spectroscopy

Ionization Spectroscopy
Laser Fluorescence Spectrocopy From Native Cancerous and Normal Rat Kidney Tissues
Raman Spectroscopic Studies of Electrogenerated Cadmium Sulfide Films on a Cadmium Electrode
Spectroscopic Study of the Variable Intensities of Selected Water Vapor Absorption Lines
Low-Frequency Raman Spectra of Cyclobutane-d_0 and Cyclobutane-d_8
Wavelength Measuring and Image Processing With an ABC 806-Microcomputer

Determination and Analysis of Ultraviolet Extinction Curves
Spectroscopic Analysis of Ba^+N_2O and Ba^+O_3 Chemiluminescence
Antiresonance Effect in Laser-Enhanced Raman Spectroscopy of Tris(2,4-Pentandionate)Chromin
Infrared Radiation: A Tool for Ion Detection
Design and Construction of a Sixty-Degree Sector Double-Focusing Mass Spectrometer
Construction and Operation of a Simple Spectrograph
Mass Spectrograph
Principle of the Mass Spectrometer
Spectrum Analysis
Experimental Spectroscopy
Near Infrared Absorption Spectroscopy
Applications of a Spectrograph
Spectroscopic Comparison of the Fluorescent and Electric Arc Radiations of Calcite

RADIATION PHYSICS (GENERAL)

Luminescence

Liquid Phase Chemiluminescence as an Analytical Tool
Three Types of Luminescence
Changes in Luminescence of $BaMgF_4$ by Addition of Ce, Tb and K Ions
Micelle Stabilization of a Fluorescent Compound
Effect of Changing Structure Upon the Photoluminescence of $CuSo_4$-NaCl Active ZnS Phospher
Effect of Heating Time on the Luminescence and Fluorescent Decay of ZnS Phosphors
Luminescence Dosimetry
Principles of Fluorescent Lights
Electroluminescence and Homogeneous Processes
Fluorescence of Detergents
Electromagnetically-Induced Luminescence
Elementary Research in Fluorescence, Phosphorescence and Luminescence
Brightness Versus Luminance
Fluorescence and the Fluoroscope
Light Bulbs and Their Uses
Gaseous Discharge Units
Temperature Variation and Effects of Radiation

X-Rays. Roentgen Rays

Interelemental Effects in Quantitative X-Ray Fluorescence Analysis
X-Ray Diffraction
The Generation of X-Rays
X-Rays From a Spark Plug
NaCl Structure Analysis Through X-Ray Diffraction
Poor Man's X-Ray Machine
X-Ray Power Supplies
A 250 Kilovolt Portable X-Ray Machine
Quantitative-Qualitative Diffraction of X-Rays by Crystals
The Development of the Scanning X-Ray as a Flying Spot Scanner

Other Radiations

Heat Radiation: Infrared vs. Visible Light
Use of Semiconducting Lead Sulfide Crystals in Detection and Measurement of Infrared Radiation

Color

Construction and Use of a Photoelectric Colorimeter
Color Organ
Land's Research
Full Color in Images From Any Two Colors
Investigation of the Phenomenon of Color Perception in Two Wave Lengths
Modification of the Land Color Theory
Experiments With the Land Phenomenon
A World of Color
Color Wheel
The Principles of Colorization
Color Dynamics
Color Box
Prismatic Colors
Energy-Induced Color Transformations
Determination of Color Composition
Effect of Wavelength of Light on Refractive Index of Colored and Colorless Solutions

ELECTRICITY AND MAGNETISM

Electricity

Instruments and Apparatus

Measuring Speed of Electricity
Electrometric Studies of Gramicidin-Cation Complexes
Vacuum Tube Fundamentals
Pulse Modulated Light Beam Transmitter
Electrical Coupling Device
Potentiometric Study of the Hexaamineruthenium(III)-Hexaamineruthenium(II) Complex-Ion System

Electrostatics

The Piezoelectric Effect
The Electrostatic Effects of the Kelvin Generator
Effects of an Electrostatic Field on the Temperature of a Heated Body
Optical Absorption Characteristics of a Biased p-n Junction in Silicon
Experimental Study of Electrets
Ionic Crystals in an Electrostatic Field
Fundamentals of Static Electricity
Elimination of Static Electricity
Production of Static Electricity in Hydrocarbons
Effects of Continuous Dielectric Flow on the Formation of Bubbles Following Electrosparking
Dielectric Heat Beamer

Electric Current

Direct Thermoelectric Sterilization of Electroconductive Fluids and Its Practical Applications

Silicon Wafer Photovoltaic Fabrication
What is Conductivity?
Superconductivity for Increasing Circuit Q
Electric Currents in Rarefied Gases
A Mercury Vapor Lamp

Electrodynamics

The Electrical Field of the Tesla Coil
The Tesla Coil and Its Application
Experiments With a Repulsion Coil
The Solenoid
Effects of Alternating Current on a Phosphor

Electric Oscillations and Electric Waves

Motion of Charged Particles in Electric and Magnetic Fields
Photometric Analysis of the Anomolous Zeeman Effect in Mercury
Energy Transformation by the Use of Microwaves
Electromagnetomotive Earth-Space Repel-Attract Mechanics
Electromagnetic Waves in Water and Ice
Characteristics of Underwater Radio Wave Propagation
Density by Electromagnetism
An Investigation Into Electromagnetic Waves
The Kerr Cell
Research on the Zeeman Effect
Faraday Effect: Aspect and Application
The Refractive Index of Gases for Radio Waves

Electric Discharge

Hydrogen-Oxygen Arc
An Experimental Study of the Selenium Photocell
Constructing a Simple Electric Eye
Electric Eye Telegraph
Electric Eye Door Opener
Applications of the Photoelectric Tube
Selenium Photoconductivity Bridge
Photoconductivity: Internal Photoelectric Effect
Phototubes: Their Theory, Construction and Uses With Respect to the Spectrum
Photoelectric Effect

Plasma Physics. Ionized Gases

An Investigation of Energy Plasma Characteristics Toward Electromagnetic Field Confinement
An Investigation of the Effects of Ion Bombardment on Heated Objects
A Plasma Accelerator for Fusion Initiation
Shock Wave Models Explaining the Unusual Breakage Patterns in Rigid Objects
Computer Simulated Plasma Evolution
Determination of Ionization Constants
Plasma Bremsstrahlung
Gaseous Ionization Phenomenon as Produced by High Frequency Current
Injection of High Energy Particles Into Confined Plasmas
Anode Spot Oscillations and Moving Striations in a Cesium Plasma
Particle Equilibrium in a High Density Ionized Gas
Emission Studies of a Nitrogen Plasma
Shock Waves: Correlation of Experimental to Ideal Shock Mach Numbers for Different Gases
Plasma: The Fourth State of Matter
Confinement of Hydrogen Plasma
Streaming Plasma Research
Development and Dynamics of a Plasma Utilizing Magnetic Pinch Effects
Spectroscopic Investigations of Flowing Plasmas
Analysis of Langmuir Probe Characteristics in a Low-Pressure Cesium Plasma

Magnetism

Study of Magnetic Drag Forces
Understanding Magnetism
Magnetic Lines of Force
Blue Prints of Magnetic Lines of Force
Magnetic Damping
Coefficient of Magnetostriction
Vitalizing the Study of Magnetism
The Magnetic Mirror Machine
Proton-Free Precession Magnetometry
Effects of a Magnetic Field (Static and Alternating) on Water
Effects of a Magnetic Field on the Spectra of Gases
Effects of a Magnetic Field on Optical Activity of Cupric Sulfate in Crystalline and Soluble States
Hydrochloric Acid and Iron: Effect of Magnetism on the Reaction Rate

Special Types of Magnetism

Paleomagnetism of Georgia Diabases
Unipolar Magnetism
Electromagnet on Derrick
Three-Dimensional Magnetism
Electromagnetic Effect of Polycondensation on Beta Glycine

Nuclear Magnetism

Apparatus for Display of Nuclear Magnetic Resonance Absorption
Nuclear Magnetic Resonance Study of Ethylenediaminetetraacetic Acid and Its Cadmium Complex
NMR Studies of Solvent Effects of Tautomeric Equilibrium of Hexafluoroacetylacetone
Nuclear Magnetic Resonance: Study of the Interrelation of Spin-Spin Coupling and Molecular Diamagnetism
Magnetic Resonance Spectrometer
Investigation of Nuclear Electric Quadruple Mount
Nuclear Magnetic Resonance Applied to Melting Point Studies
Low Frequency Electron Paramagnetic Resonance Spectroscopy
Studies in High Resolution Nuclear Magnetic Resonance

NUCLEAR AND PARTICLE PHYSICS. ATOMIC ENERGY. RADIOACTIVITY

Experimental Study of Nuclear Structure
The Universe of Subatomic Structure
Determination of Thermal Neutron Absorption Cross Sections
Study of Nuclear Phenomenon
Artificial Nuclear Disintegration of Lithium Atoms
Nuclear Disintegration and Density
Atomic Transmutation

Instruments and Apparatus

Linear Alpha Particle Accelerator
.5 MEV Linear Accelerator
Sectional Magnetic Focusing in a Six-Inch Cyclotron
Design and Construction of a Linear Particle Accelerator
X-Ray Emissions in a Proton Particle Accelerator
Production and Acceleration of Sub-Atomic Particles
Design, Construction and Operation of a Van de Graff Accelerator and Its Use in Research Into the Effects of Low Level Radiation on Transistors
Construction of a Gouy Balance and Testing of Spin Characteristics of Selected Complex Compounds
Linear Free-Energy and Other Relationships in Mass Spectrometry
Epitaxial Evaporation of Tungsten for the Improvement of the Signal-to-Noise Ratio in an Application to Surface Ionization Detector
Radiation Beam Dosimetry Using Thermoluminescent Lithium Fluoride
Anti-Polar Particle Acceleration Theory
Construction and Use of an Electron Accelerator and Cloud Chamber for Nuclear Research
Construction of a Wilson Cloud Chamber With Solenoid Camera Control
Diffusion Cloud Chamber and Analyzing Electromagnet
Development of a Classroom Cloud Chamber
Expansion-Type Cloud Chamber
Van de Graff Generator With Proposed Beta Particle Accelerator
Building a Small Cyclotron
An Adaptation of a Solion Unit to Measure Acceleration
A 3-MEV Neutron Generator and 100 KEV X-Ray Source
Description of a Theory and Plans for Construction of Proton Accelerator to Prove Value of Theory
Atom Smasher and Ionic Drive Reaction Motor
An Apparatus for the Delivery of High Energy Electrons
Construction and Operation of a Spherical Ion Accelerator
Building and Operating a Linear Particle Accelerator
Experiments With a Homemade Particle Accelerator
Beta Ray Spectrometer
Apparatus for Observing Atomic Reactions
Experiments With the Geiger Counter
Advanced Ultracentrifuge Designs
Construction of a Geiger-Muller Tube Coincidence Counter to Detect Origin of Cosmic Radiation and Determine Relationship of Cosmic Radiation to Earth's Topography
Effect of Grids on a Geiger Tube
Design for a Silicon Crystal Alpha Particle Detector
Construction and Uses of a Centrifuge
Design and Construction of a Liquid Freon 114 Bubble Chamber
Design and Construction of a Bubble Chamber
Ion Chamber: Construction and Experiments
Spark Chamber With System for Photographic Recording of Cosmic Ray Tracks
An Inexpensive Wilson Cloud Chamber

Nuclear Fusion

Project Fusion
Controlled Thermonuclear Fusion
High Temperature Plasma Techniques Necessary for a Controlled Thermonuclear Reaction

Elementary Particle Physics

An Experimental Investigation of the Origin of Cosmic Rays
Spin-Stabilization Analysis
Compound Mass Absorption Coefficients for Neutrinos
Quark-Lepton Substructural Constraints
Electron Probability Distribution of the Helium Atom
Electron States in Matter
Effect of Patterned and Nonpatterned Light on Alpha Waves
Meson Symmetry
Computer Solution of Atomic Systems of More Than Two Particles
Measurement of the Effect of Micro Meteoroids on the Production of Secondary Cosmic Rays
The Charge and Mass of the Electron
Cosmic Ray Interference to Microelectronic Devices
High Energy Physics: The Ultimate Structure of Matter and Energy
A Study of the Subatomic Particle, the Sigma Hyperon
Exploring Subnuclear Physics
Particle Systems and Their Predictions
Observations of Alpha Particle Emission
Creation of Antimatter
Downfall of Parity
Nature and Characteristics of Fundamental Particles
Electron Resonance in Crystals
Determining the Magnetic Moment of the Electron
Theoretical Probability of Electron Position in Atomic Subshell Configuration
Electron Excitation Potentials of Helium and Mercury
Relationship Between Mechanical Frequency and Radiation Frequency of a Bohr Electron

Electron Charge Determination by Oil Drop Method
Millikan's Method of Determining the Ultimate Unit of Charge
Some Preliminary Considerations on the Elementary Nature of the Photon
Experimental Confirmation of Wave-Particle Duality by the Use of Electron and Ion
Measuring the Mass of an Electron
Effect of Natural Phenomena on Cosmic Ray Intensity
Cosmic Rays Studied With a Counter-Controlled Cloud Chamber
Diffraction of Electrons
Alpha and Beta Rays (Photographs)
Spectrometer Analysis of Beta Emitters
Effects of Gamma Radiation on Deformed Sapphire Crystals
Comparative Color Absorption of Beta and Gamma Radiation
Relative Numbers of the Kinds of Ions in Air Irradiated With Gamma Rays
Characteristic Properties of Alpha Ray Absorption in Air and Other Gases
The Birth of Mass: The Positron-Electron Pair
Cloud Tracks of Subatomic Particles

Nuclear Interactions

Interaction of Radioactive Emanations and Matter
Mass and Energy Reactions Between Electrons and Positrons
Possible Effects of Gravitational Fields on Electromagnetic Interactions
Determination of the Electron's Cross Section Using Photoelectric and Particle Scattering Principles
Computer Simulation of the Interaction of Gamma Radiation and Matter
Analysis of the Boson Effect on Particle Interactions
Kinetics of Proton-Proton Collisions at 1.48 GeV
Proton-Proton Scattering Between Low Energy Colliding Beams
Parity Violation in Lambda Decay

Radioactivity and Radioactive Substances

Radioisotope Identificaton by Laser-Induced Spectrographic Angular Aberration
Calculating the Products of Radioactive Series Disintegrations as Functions of Time
Effects of He-Ne Laser Radiation on the Beta Decay of P-32
Chemical and Physical Study of the Cosmic Ray Production of Radiochlorine Isotopes
Radiocarbon Dating Experiments Using Modifications of Libby's Methods
Radioisotopes as Tracers
A Crystallization of the Problems in Radiocarbon Dating
Experiments With Radioisotopes
A Study of Radioactivity
Identification of Radioisotopes Comprising Fallout and Measurement of Their Radiation Intensities
The Stability of Radioactive Equilibria
Half-Life Determination
Metals as Effective Shields Against Alpha and Beta Radiation
Analysis of Radioisotopes by Alpha Particle Range Detection
Determination of the Half-Life of Zn-65

GEOPHYSICS. COSMIC PHYSICS

Effect of Solar Flux and X-Rays on Ionospheric Electron Content
Design and Construction of a Ionosphere Recorder
Phenomena of Atmospherics
Diurnal Variation of the Earth's Atmospheric Electricity
Investigation of a Gaseous Discharge Phenomena
Solar Effect on High Altitude Atmospheric Density
Solar Atmospheric Effects Causing Geoelectrostatic and Geomagnetic Changes
Detection and Measurement of Land Tides

GEOMAGNETISM

Magnetic Interactions Between Localized Spins in Coal
Compass From Dead Flashlight Cell
Theory of Geomagnetic Pole Migration

METEOROLOGY. CLIMATOLOGY

Climates Produced by the Sun
The Climate of Chicago
Types of Weather

Technique. Methods of Observation

My Home Weather Bureau
Building a Weather Station
Amateur Reception of Weather Satellite Pictures
The Electronic Weather Station
Sferics Detection Device for Analysis of Meteorological Phenomena
Meteorological Station

Meteorological Instruments

Electric Recording Weathervane
Electronic Measurement of Barometric Pressure
Build Your Own Weather Instruments
Psychrometer
Hair Hygrometer
A Homemade Barometer

Aeronomy

Design, Construction and Operation of a Weather Satellite Station
Principal Component Simplification of Satellite Data for Nonlambertian Surfaces

Dynamic Meteorology

Dynamic Air Cushions: Effects of Offsetting the Boundary Layer With an Interjectory Airstream

Possible Relationship Between Sunspot Numbers and Terrestrial Weather Conditions
Meteorological Transitional Characteristics as Evidenced Across a Juneau Icefield Transversal Section
Observations of Coastal Upwelling Areas During Periods of Variable Winds
Demonstration of the Coriolis Effect
Air Masses: Cold and Warm Fronts

Atmospheric Shells (General)

Feasibility Study of Ionospheric Altitude Measurement by Radar
Effects of Several Gases on Ozone and Possible Stratospheric Significance
Aerosols and the Ozone Layer
Effects of Photodissociated CCl_2F_2 in the Catalytic Destruction of Atmospheric Ozone

Paleoclimatology

Paleoclimatology: Fossil Marine Diatoms and Oceanic Temperature Profiles
Paleoclimatology Using Size Variations in Fossil Marine Diatoms

Temperature and Radiation

Depletion of Solar Radiation by Atmospheric Constituents
Relationship Between Thermal-Agitation Noise and Temperature

Aqueous Vapor

Condensation Nucleation: A Study of pH Factors Affecting Snow Crystal Formation
Snow Cornices
Thermal Effects of Carbon Dioxide on Ice Nuclei Formation
Toward a More Effective Model of Cloud Formation: Fractal Simulation of Cumuloid Convection
Analysis of the Star-Count Method of Determining Molecular Cloud Masses
Abundance and Hygroscopic Nature of Cloud Condensation Nuclei
Snow Crystals: A Comparative Analysis
Relating Sea Surface Temperature to Rainfall in the Caribbean Using Asymptotic Singular Decomposition
Humidity
The Water Cycle
Precipitation
Coalescence of Raindroplets
Rain Alarm
Meteors and Rainfall: Relationship Between Increased Meteor Activity and Abnormally Large Amounts of Precipitation Over the U.S. 1905-1964
Snow Crystal Research
Infrared Content of a Selected Area in the North Sky and Its Relationship to Cloud Formations
Interpretation of Cloud Temperature From Radiation Measurements of Nimbus I and II

Wind. Storms. Cyclones

Movements of Low Pressure Systems Across the U.S. and How They Affect the Weather of Delphi, Indiana
Development of an Aeolian Anemometer
Using Chemical Sea-Surface Films to Supress Hurricane Development
Analysis of the Upper Level of a Tropical Cyclone
Three-Year Study on the Correlation Between Sunspots and Atlantic Tropical Cyclones
Predicting Storm Paths Using Mathematical Equations
A Comparative Analysis of Typical and Atypical Tornadic Cumulonimbi
Observational Study of a Summertime Tropical Tornado
Study of Cloud Movement in Comparison With the Surface Wind Direction
A Study in Atmospheric Forces: The South Florida Waterspout
Miniature Tornado
Analysis of Hurricane Paths
Extratropical Cyclones
Tornado Producer
Environmental Air-Flow

Electrical Phenomena in the Atmosphere

Synthesis of Lightning
Lightning Assimilation and Storage
Lightning From Drops of Water
Thunderstorm Formation and Atmospheric Electricity
Electrification of Thunderstorms
A Two-Year Study of Thunderstorms

Aurora

Simulation of the Northern Lights

Radio Meteorology. Microwave Meteorology

VHF Radio Meteorology

Meteorological Optics

Relationships of Rainbow Positions and Indexes of Refraction
Computer Modeling of the Transfer of UV-B Radiation Through the Earth's Atmosphere and Ozone Problem
Analyzing Atmospheric Refraction and Ionospheric Inhomogeneities at Differential Latitutes

Climatology and Weather

Method for Simulating and Studying Weather Systems in a Liquid Medium
Determination of Stratigraphy and Eocene Climatic Conditions
Computer Simulation of the Earth's Future Climate Based on the Radiative Energy Transfer, the Biogeochemical Carbon Cycle and Atmospheric Thermodynamics
Rainfall Patterns: Study of a Modified Climate

Weather Data Transmitter
Weather Prediction
Violent Weather Detection and Ranging
Application of Sferics and Field Intensity Measurements to Short Term Weather Forecasting
Weather Simulator

CHEMISTRY — QD

COMPUTER PROGRAMS

Applications of Microcomputers to Chemical Analysis: A Study of Complex Ions
Computer as an Aid in Chemistry

STUDY AND EXPERIMENTS

Reactions in Sodium Silicate: Acetic Acid Gels
Acidity in Milk
Chemicals at Home and in the Lab
Home Dry Cleaning
What Causes a Ring in Your Bathtub?
Safety in the Laboratory
Acid-Alkali Content
An Experiment in Creation
Lebanon Bologna: Its Chemistry
Chemical Collection
Compounds and Formulas
Making Household Pastes and Glues
Home Spot Remover
Homemade Matches
Organic Deductive Postulation
Embedding Plastics and Their Uses
Nitrogen Fixation by the Nitride Process
Nitrogen Fixation by Electrical Discharge
Titration
Silvering
My Experience With Blowing Glass
Preparation of Hydrogen Peroxide
Laboratory Glass Manipulation
Slow Oxidation

ANALYTICAL CHEMISTRY

Reagents, Indicators, Test Papers

Natural Indicators
Foodstuff Indicators
Flowers as Chemical Indicators
Indicators and Their Effects
CO Indicator
Substitution of Calcium for Magnesium in an Aromatic Radical Grignard Reagent
Chromatographic Analysis of pH Indicators

Methods of Analysis

Vapor Phase Chromatography of Alkanes
Separation of Optical Brighteners by Thin Layer Chromatography
Thin Layer Chromatography
Gel Permeation Chromatography of Antioxidants: Molecular Weight Versus Elution
Post Column Reduction Using a Zinc Metal Reactor in Electrochemical Detection for Liquid Chromatography
Use of Successive Approximation to Create a Calibration Curve for Gel Permeation Chromatography
Gas-Liquid Chromatography System for Chlorinated Compounds
A Method for the Determination of Mercury Concentration in a Solid Sample
Development and Application of an Automated Flame Photometer
The Design and Construction of a Digital pH Meter
Thin-Layer Chromatography: Development of a Three-Phase System
Affinity Chromatography of Bacterial Luciferase
Paper Electrophoresis in a pH Gradient: A Novel Technique for the Separation of Amphoteric Compounds
Continuous Flow Paper Electrophoresis for the Separation of Proteins
Chromatography and Electrophoresis as Applied to Separation of Hemicelluloses
Paper Electrophoresis
A Method for Determining the Extent of Exhaustion of Developer by Photometrics
Inorganic Microanalysis
Microelectrophoresis
Effects of Current and Field Strength on Electrophoretic Migration
Chemical Spectroscope
Electrophoresis Chamber and Experiments With the Separation of Color Dyes and Metal Ions
Photoelectric Colorimeter
Capillary Tube Method of Electrophoresis
Chromatographic Adsorption Analysis
Progressive Studies in Chromatography
Chemical Evolutions With Chromatographic Techniques
Determining Efficiency of Paper Chromatographic Separation of Inorganic Mixtures
Gas-Liquid Chromatography
Design and Construction of a Gas Chromatograph
Research Work in Gas Chromatography
Properties of Gaseous Alkanes as Carrier Gases in Chromatography
Refinement of the Gas Chromatography Detection System
Construction of Gas Chromatographs to Study Propane as a Carrier Gas and the Use of Gas Chromatographs as Analytical Tools
Gas Chromatography-Vapor Phase
Experimentation on an Electromagnetic Radiation Technique to Study Chemical Compounds Comparatively
Refraction Index Iodine Value
Colloidal Electrophoresis
Design and Use of Oxygen Analyzer

Qualitative Analysis

Computer Simulation of Experiments in Qualitative Analysis
Dimethylglyoxime as a Selective Reagent for Spectrophotometric Determination of Trace Concentrations of Nickel in Environmental Samples
Comparison of Two Water Systems Through Quantitative and Qualitative Chemical Analysis
Qualitative Discernment of the Lighter Lanthanides

An Adaptation of Inorganic-Chemical Analysis to Computer-Interactive Simulation
Effects of Changing Substituent Groups on Large Molybdenum Molecules
Organic Qualitative Analysis for Minerals
Analysis of Ship Island Sand
Expanded Qualitative Analysis System
Development of Procedure for Qualitative Analysis of Vanadium
Identification of a Plastic and Paint Solvent in a Certain Eraser
Borax Bead Tests
Detection of Ethyl Vanillin in Vanilla Extracts
Testing Disinfectants
Non-Sulphide System of Qualitative Analysis
Qualitative Analytical Tests for Aliphatic Monohydric Alcohols
Qualitative Analysis of Group II and II Cations by Means of a Cation Exchange Resin

Quantitative Analysis

A Quantitative Study of the Bromate-Bromide Reaction
Quantitative Method for Evaluating the Potential of Chemicals for Dioxin Contamination
Quantitative Analysis of the Activator in Fluorescent Calcite
Quantitative Electrical Determination of Dissolved Oxygen Concentration in Liquids
Colorimetry in the Determination of Banana Saccharides
Colorimetric Examination of Some Metal Complexes
Photometric Quantitative Analysis of Trace Amounts of Ethanol
Systematic Quantitative Analysis of Metal Ions by Titration
Chromatographic Separation of NH_4^+, K^+ and Li^+ Ions
Stoichiometry of the Mercury (II)-Potassium Iodide-Water System
Fluorescence Studies of the Dipeptide L-Cystein-L-Tryptophan
Polychromatic Fluorescence of Acridine Orange Bound to Deoxyribonucleic Acid
An Investigation of Fluorescence in Relation to the Porphyrins

Technical Analysis

Characterization of Medieval Window Glass by Neutron Activation Analysis
Spectrographic Analysis of Chemical and Mineral Compounds
Investigation of Non-equilibrium Morphologies of a Eutectic Alloy
Ciliastatic Components of Cigarette Smoke
Analysis of Fluoride in Toothpaste and Water
Inhibiting Effects of Freon on the Production of Ozone
Synthesis and Nuclear Magnetic Resonance Analysis of Fluorinated Oxetanes
Elemental Analysis of Sand From the South Shore of Long Island by Proton-Induced X-Ray Emission
Laser Induced Spectrophotometric Analysis by the Thermal Lens Technique in Copper Compounds Using a Homemade He-Ne Laser
Determination of Heavy Metal Ions by Gelatin Containing Sulfide
Chemical Analysis of a Buffalo Nickel Date Restorer
Chemical Analysis and Historial Markers
Copper-Nickel-Iron Alloys for Mossbauer Effect Studies
Equilibrium Analysis of a Metal Alloy System
Separation and Determination of Various Metals in an Alloy by Means of Anion Exchange
Metallic Diazotates Applied to Analytical Chemistry
Spectroscopic Analysis of Reduction Sensitization in Silver Bromide Emulsions
Analytical Study of Balanus Adhesive
Electrophoretic Analysis of Common Metal Ions
Electrophoretic Separation of Ribonucleotides

Water Analysis

Relationship Between Oxygen Content and Thermal Stratification in Lentic and Lotic Communities
Factors Affecting Formation of Boules in Distilled Water and Some Organic Liquids
Study of Aqueous Solutions
Chemistry of the Sea
Methane Hydrate and the Recrystallization of Water
Polywater: The Mysterious Anomaly
Improved Method for Quantitative Analysis for Water

INORGANIC CHEMISTRY

Inorganic Synthesis

Synthesis and Characterization of Nonstoichiometric Zirconium Monosulfide Compounds
Synthesis and Solution Characterization of Transition Metal Complexes of Divalent Cobalt

Nonmetals

Chemical-Concentration of Deuterium
Interhalogens and Polyhalides
New Discovery in the Decomposition of Ammonium Dichromate
Unusual Decomposition of Certain Unstable Ammonium Compounds
Spectral Variation of Helium Gas Discharge
Regeneration of Oxygen Gas From Carbon Dioxide
Chemical Oxygen Regeneration System for Use in Outer Space
Generation of the Halogen Fluorides
Factors Affecting Hydrogen Peroxide Decomposition by Catalase
Chemical Kinetics of the Decomposition of Hydrogen Peroxide in the Presence of the Ferric Ion
The Effect of Ozone on Sodium Hypochlorite
Thermal Expansion of Polycrystalline Alkali Halides
Color Centers in Alkali Halides

Metals

Hydrogen Absorption in Metals
Spectrophotometric Determination of Rare Earth Chelates
Rare Earth Separation
Ion Exchange Separation of the Rare Earth Metals
Magnetic Susceptibility of Alkali Metal Solutions

Salts

Conductivity and Resistance of Certain Melted Salts
Prediction of Dominant Wavelength of Absorption of an Inorganic Metallic Salt

Special Elements

Heat Capacity of Thorium Metal
Effect of Changes in Gamma Ray Energy Upon the Mass Absorption Coefficient of Pb
Determining Transits of Mercury
Effects of Voltage on the Sputtering Rate of Cu
Linear Thermal Expansion of the Carbonates
Bivalent Compounds of Samarium, Europium, and Ytterbium
Effects of pH on the Formation of Tantalum Oxide
Electronic Properties of Lead Tellurium
Simultaneous Determination of Iron (II) and Vanadium (IV) by Potentiometric Oxidimetry
Analysis of Iron Sulfide
Indirect Titration of Boron With EDTA
Boron Chemistry
Magnesium From the Sea
Separation of Lanthanides by Ion Exchange
A Successful Laboratory Procedure for Obtaining Metallic Lithium
Potassium Analysis by Neutron Activation
Detecting Sodium With a Spectroscope
Boundary Conditions in Rotating Helium II
Partial Study of Cobalt (II) and Cobalt (III) Ions
Spotting Out of Electrodeposited Copper
Liesegang Rings: Investigation of Copper Chromate
Edge of Cadmium Sulfide
Determination of the Cadmium-Bismuth Constitutional Diagram
Interactions of Cadmium and Mercury in a Nitrogen Atmosphere
The Pearl: The Most Valuable Formation of $CaCO_3$
Free Radical Carbon Skeletal Rearrangements
Orginial Cesium Extraction Process
Properties of the End Oxyacids of Chlorine
Ferromagnetic Domains in Microscopic Crystals of Cobalt
Effect of Hydrogen Bonding in H_2O
Effect of Copper Sulfate Solution on the Displacement of Hydrogen by Zinc From Hydrochloric Acid
Study of the Byproducts of the Thermal Decomposition of Potassium Chlorate
Behavior of a Mercury Drop and Related Phenomena

ORGANIC CHEMISTRY

Operations in Organic Chemistry

Comparison of the Biuret Method and Fluorimetry in the Analysis of Proteins
Removal of Caffeine From Tea Bags, Carbonated Beverages and Coffees
Kinetic Study of the Decomposition of Aspartame and the Products Formed and Their Determination by High Performance Liquid Chromatography
NMR as an Instrument for Investigating the Structure of Organic Compounds
Rate Comparison of Bromination of Aromatic Derivatives
Ortho Effect in Active Ester Couplings Using Mono-Substituted Fluorophenyl and Chlorophenyl Ester Groups
Structure Elucidation of Organic Compounds by Computers
Kinetic Study of Periodate Oxidation of Straight-Chained and Ring Hydrocarbons
The Photo-Reduction of Aromatic Nitro-Compounds
Computer Applications to the Theory and Practice of Organic Chemistry
The Fractional Distillation of Crude Petroleum Oil
Relationship of Dipeptide Structure to Chromatographic Behavior
Separation of Tobacco Aklaloids by Thin-Layer Chromatography
Separation of Pentacyclic Triterpenes by Reversed-Phase High Performance Liquid Chromatography
Separation of Pentacyclic Triterpenes by Reversed-Phase High Performance Liquid Chromatography
Structure Elucidation of Organic Compounds by Computer
Computer Simulations of Protein Folding in Two and Three Dimensions
Electrochemical and Spectroscopic Studies of the Reduction of Pyrazine in Acidic Media
Pipetting Accuracy Through Radioisotopes
Ionophoretic Formation of Liesegang Rings
Polymeric Growth Influence
Obtaining Pure Polystyrene in Liquid Phase Polymerization

Organic Synthesis

Synthesis of Juglone (5-Hydroxy-1, 4-Naphthoquinone)
Synthesis of Amino Acids From Inorganic Substances
Synthesis of Saigon Cinnamon Oil Using Gas Chromatography and Mass Spectrometry
Synthesis of Novel Organic Metals
Synthesis of Some Organic Acids
Synthesis and Testing of Dyes
A New Method for Building Synthetic Peptides
Synthesis of Complex Organic Compounds From Simple Gases
Synthesis and Study of Some Hydantoins
Synthesis of Some Previously Unsynthesized Fulvens

Synthesis and Photolusis of p-N, N-Diethylamino-Benzenediazonium Fluorophosphate
The Kolbe Electrosynthesis of Propionic Acid
Synthesis and Rearrangements of 1-Picolinoyl Aziridine
Synthesis of Tetraethanol Ammonium Hydroxide
Synthesis of Amino Acids

Organic Analysis

Spectrophotometric Analysis of Protein-Drug Interactions Using Competitive Binding Techniques and Spectroscopic Probes
A Chromatographic Study of the Protease Activity of *Trichophyton rubrum*
Analysis of Trace Hydrolysis Products in N,N-Dimethylformamide
A Kinetic Study of the Oxidation of 2-Hexanol by Bromine in Carbon Tetrachloride
Determining the Number of Isomers of Generic Organic Compounds as a Function of Carbon Content
Detection and Identification of Glucosyl Fluoride Formed by HF Saccharification
Mechanism of the Oxidation of 2-Octanol by Bromine in the Presence of Different Silver Salts
Binding of Plasma Lipoproteins Using Dye-Ligand Affinity Chromatography
Effects of Alkalinity on the Chemiluminescent Oxidation of 5-Amino-2, 3-Dihydro-1, 4-Phthalazinedione
What are the Properties of a Strong Oxidant?
Paper Chromatography of Amino Acids
Serum Amino Acid Chromatography in Medical Research
Quantitative and Qualitative Estimation of Amino Acids by Paper Chromatography
Chromatographic Analysis of the Amino Acids in *Crassostrea virginica*
Chromatographic Determination of Pressor Amines in Foods
Determination of Protein and Nonprotein Sulfydryl Groups by Potentiometric and Spectroscopic Means
Electroanalytical Identification of the Semiquinoid Free Radical
Chromatography of Pigment Mutations in Prodigiosin Induced by Radiation
Differentiation of Antibiotics by Paper Chromatography
Study of Monocarboxylic Acids by Thin-Layer Chromatography
Quantitative Investigation of the Hydrogenation of Benzene Using an Electrical Corona as a Catalyst
Experiments on Separating Organic Compounds by Chromatography
Isonitrosobarbituric Acid and Thin Layer Chromatography
Application of Gas Chromatography to Determination of Particulate Organic Carbon in Sea Water
Separation of Phospholipids by Thin Film and Paper Chromatography

Aliphatic and Aromatic Compounds

A Flash Photolysis Investigation of Aromatic Hydrocarbons
Biological Degradation of Oils
Development of a Diester Synthetic Oil Additive
Electrochemical Reduction of Allenic Ketones in Dimethylformamide
The Isomers of Alkanes
Oil Sorption Capacities of the Aromatic Hydrocarbons
Corrosion Inhibition by Amines
Efficiency of Ethanol Production From Sugarcane Juice
Microbial Degradation of Aromatic Hydrocarbons
Isomerization of Allyl Alcohol
Reverse Photochromism of Cinnamaldehyde Semicarbazone
Production of a Hydrocarbon and a Fluorocarbon, and a Comparison Between the Two Substances
Esters and Flavors
Reactions of Hypochlorous Acid With Ketones
Ketone Derivatives of Heteropoly Acids
Leakage When Amberlite IR-120 is Used in the Methanol Series of Alcohols With Zinc Iodide as the Solute
Monoketone Derivatives of Heteropoly Acids
Development of a Recursive Formula for the Number of Structural Isomers of a General Alkane
Synthesis of the Aliphatic Alpha-Amino Acids
Atomic Structure of Hydrocarbons
Measuring the Force of Compression of Monolayers of Various Hydrocarbons
Effect of Ultraviolet Light on Carbon Tetrachloride, Iodine and Selected Olefins
Comparative Chemistry of Hickory Nut Oils
Sulfur Analogs of Phospholipids

Carbohydrates

Radiation-Induced and Enzyme Hydrolyzed Decomposition of Cellulose Resulting in High Yield of Reducing Sugar
Sugar for Tomorrow's Millions
Sugar-Born Complexes
Saccharides in the Ripening Banana
How to Make Coconut Sugar
Optical Activity of Some Sugar Molecules
Catalytic Effect of Metallic Oxides on the Burning of Sugar
Structural Determination of Polysaccharides

Miscellaneous Compounds: Special Groups

Discovery and Development of a New Series of Metal Organics
Synthesis of Compounds Containing a Cyclopropane-Cyclopentene Fused-Ring System
Work With Organosilicon Intermediates and Silicone Elastomers
Decarboxylation of Pyruvic Acid
Clathrate Compounds of Hydroquinone
Construction and Use of Polarograph in Determining a Table of Reduction Potentials for Study of Quinoid System of Organic Compounds
Studies of the Naphthalic Anhydride Series
Spectropolarimetric Analysis of the Secondary Structure of Gramicidin-S and Tyrocidine-A

Antibiotics

Production of Penicillin G and an *in vitro* Study of Its Activity
Antibiotics in Tree Bark
Rheum rhaponticum, a Potential Antibiotic
Effect of DL-Alpha-Methyl Serine on Antibiotics

Polymers, Macromolecules

Dissociation Properties of Carbon Polymers
How Does Synthetic Polymer Density Affect Nylon Failure?
Discovery of an Original Series of Titanium Polymers
Basic Studies in Boron-Organic Polymer Chemistry
Measuring the Glass-Transition Temperatures of Selected Polymers
The Role of the Boron Atom in the Synthesis of the Dimethyl Silicone Polymer Known as "Bouncing Putty"

Biological Chemistry

Quantitative Method for Amino Acid Analysis of Bovine Mitochondrial Ribosomal Proteins
Synthesis of an Amino Acid Compound and the Study of Its Optical Activity
Possible Explanation for the Abundance of Levorotatory Biochemical Compounds
Spontaneous Synthesis of Fundamental Biochemical Substances
Computer Analysis of Protein Evolution
Protein Synthesis and Cryogenics: Cell Viability
Characterization of Egg Shell Membrane Protein
Effect of Polydeoxythymidylate and Polydeoxyadenylate on the Synthesis of Polyribonucleotides
Study of the Period of DNA Synthesis Using Tritiated Thymidine
Evidence for Double Helical Structure of Ribosomal RNA
DNA (Deoxyribonucleic Acid)
DNA: Extracting, Staining
The Bonding Habits of the DNA Bases
Theories of DNA Replication
Isolation of DNA and Determination of Single Stranded Character
Method for Separating Single and Double Stranded DNA
Isolation of Extra-Nuclear DNA Polymerase
Quantitative and Qualitative Analysis of Gases in Blood Samples by Gas-Solid Chromatography
Formation and Modification of Epoxy Resins
Ion Exchange Resins
An Investigation of Chromatographic Applications of Ion Exchange Resins
Curing Times for Epoxy Resins
Alkaloidal Isolation, Extraction and Identification
Synthesis of Amino Acids, Peptides, Proteins and Spherules
Synthesis of the Red Pigment, Prodigiosin, in *Serratia marscens*
Oxidation of Terpenes and Sesquiterpenes by *Pseudomonas fluorescens*
Experiments With Phenol-Formaldehyde Resin
Use of Resins for Separation of Closely Related Metallic Ions
Denaturation of Protein by Shaking
Radiochromatography: Amino Acid Metabolism
How to Separate the Urea From the Urine to Produce a Diuretic and Sedatives
Production of Polypeptides From Inorganic Matter
A Study of Amino Acids
Extraction and Identification of Amino Acids
Investigation of Amino Acid-Sugar Reactions
Dihydroxyacetone Reaction With Amino Acids
Home Synthesis of Indigo
Vegetable Dyes With Chemicals
Synthesis, Application and Bleaching of Organic Dyes
Chemical Nature of the Slime of *Helix aspersa*
Hydrolysis of Starch in Saliva
Isolation of Gamma Globulin by Column Chromatography
Synthetic Dyes
Methods of Organically Preparing Dyes
Thermalcopolymerization of Amino Acids to a Polypeptide Resembling Protein
Chromatographic Separation of Growth Promoters and Inhibitors
Proteins and Amino Acids
Synthesis of Protein From Crude Oil

PHYSICAL AND THEORETICAL CHEMISTRY

Effect of Ultrasound on the Hydrolysis of 2-Bromo-2-Methylpropane in Aqueous Acetone Media
Laser Isotope Separation
Effect of an Electric Field on NQR Absorption of Chlorine 35
Factors Affecting Physiochemical Periodicity
Radicisotope Dilution Analysis

Atomic and Molecular Weights

Determination of Avogadro's Number From Atmospheric Scattering Intensity
Determination of Avogadro's Number Through the Use of Surface Films
X-Ray Diffraction in Rock Salt and Sylvite: Determination of Avogadro's Number
Protein Molecular Weight Determination Using High Pressure Gel Filtration Chromatography
How Big is a Molecule?
Determining Molecular Weights
Weighing a Copper Atom

Atomic and Molecular Theory and Structure

Computer Study of the Hydrogen Chloride Molecule and Its Components
Calculation of Two-Dimensional Probabilities for Hydrogen Atomic Orbitals and H_2 Molecular Orbitals From Schroedinger Wave Functions
Estimation of Bond Dissociation Energies in Hydrocarbons Using Basis Sets of Molecules and the Method of (Ordinary) Least Squares Analysis by a Microcomputer

Sphericity and Consequent Behavior of Atoms With a Half-Filled or Completely Filled f-Subshell
Using Computer Graphics to Present Properties of Various States of Hydrogen
Determining Structural Isomers With Nuclear Magnetic Resonance Spectroscopy
Stability of the Classical Covalent Bond
Chemathematics: Mathematical Generalization of Molecular Chemistry
Graphing Electron Orbitals
The Elements and Their Valences
Atomic Fingerprints
Theory of a Molecular Structure
A Chemical Molecular Beam Detector
Monomolecular Films
Relation of Properties to Structure and Type of Bonding
Tensile and Shear Strengths of Epoxide Adhesives as Related to Their Molecular Structures and Methods of Cure
Stability of Disulfinic Acids as a Function of Intramolecular Hydrogen Bonding
Chemical Bonding in Static Frictional Forces
Relationship of Ester Bond Linkage to the Physical Properties of the Collagen Molecule
Ultrasonics: Determination of Bond Energy of Insonation

Physical Properties in Relation to Structure

Optical Analysis of Polymer Structures
Effects of Molten Potassium Chlorate on the Tensile Strength of Soft Glass
Using Supercritical Xenon as a Solvent for Optically Active Organic Molecules: A Possible New Technique for Achieving Electrical Pumping of Dye Lasers

Complex Compounds

The Bonding in the Nd(III) and Ho(III) Aminopolycarboxylate Chelates
Derivation of the Spectrochemical Series From Cobalt (III) Pentamine Complexes
Synthesis and Study of $Mo(CO)_4(PPh_2O)_2SiRR'$ Compounds
Optical Isomerism in Cobalt, Iron and Nickel Complexes
Cobalt, Nickel and Iron Complexes: Synthesis and Resolution of Optical Isomers
Isomerism in Complex Compounds
Some Polymeric Saccharic Acid Chelates
Mercury-Sodium Complex
Nickel Dimethyglyoxime Complexes
Influence of Metal Ions on the Formation of Copper Ammine Complex Salt
An Analysis of a Complex Pegmatite
Catalytic Effects of Transition Metal Coordination Complexes on Diels-Alder Reactions
Low Temperature Electronic Emission Spectral Studies Concerning Some Transition Metal Complexes
Effect Upon Equilibrium Constants in Iodine Complexes Due to Change in Aromatic Concentrations
Study of Chelation
Chelate Metal Complexes
Complexes of $CoCl_2$ and CoO With $FeCl_3$
Analysis of Chromium (III) Complexes With an m-IDA Ligand
Bridge Isomerism in Transition-Metal Thiocyanate Complexes
EDTA-Magnesium Complex
Nucleophilic Reactions of Some Cobalt (III) Complexes
Complexes of Tripositive Cobalt
Complexes of Copper and Mercury With Thioacetamide
Copper (II) Sulfate and Its Complexes

Stereochemistry

Stereoisomers in the Cobalt Complex
Application of Symmetry Properties to Determine the Molecular Geometry of a Chloroform Molecule
Spacial Geometry of Cyclic Organic Molecules
Method for Determining the Molecular Optical Rotation in Simple Saccharides
Effect of Deuterium Substitution on Stereoisomers

Conditions and Laws of Chemical Reactions

Effects of Concentration and Temperature on the Rate of Oxidation-Reduction Reactions: A Computer-Assisted Investigation
Balancing Oxidation-Reduction Equations With the Microcomputer
Finite Time Determination of Reaction Kinetics
Inorganic Reduction Reactions Catalyzed by Chlorophyll
Laser Induced Reaction of No + CO
Kinetic Catalysis of the Iodine Clock Reaction
Phase Transfer Catalysis: A Better Approach to Dichlorocarbene Synthesis
The Manipulation of an Oscillating Chemical System
Reaction of the NH Radical With Polyacetylene Using Molecular Beam Techniques
Thermodynamics and Kinetics of an Oscillating Chemical Reaction
Micelle Stabilization of a Fluorescent Compound
Phase Transformations Involving the Grinding of Zirconium Oxide
Kinetics of the Oxidation of Mandelic Acid and Bromine in the Presence of Silver Salts
Computer Simulation of Chemical Reactions
Effect of Altering pH, Salinity and Temperature on Complex Coacervation
Reaction Kinetics of Linoleic Acid in a Chlorine Environment
Acetic Anhydride-Water Reaction in Relation to Hydrates
Investigation Into the Effects of Reduced Pressure on the Rates of Various Chemical Reactions
Search for Pt (III) as an Intermediate in Redox Reactions
Examination of the Lewis Acid Displacement Criterion by Analysis of a Stannic Chloride-Carbon Dioxide Displacement Reaction
Three Types of Chemical Luminescence
Kinetics of Carbon Fiber Oxidation

High-Energy Chemical Reaction
Reaction Time Board
Slow Reaction Rate Determination
Factors Affecting Time and Temperature of Reaction Between Sulfurous Acid and Iodic Acid
Reaction Mechanism of Trans-di-Chloro-bisethylene Diamine Cobalt III Chloride and Sulphuric Acid
Effects of Light Energy on Inorganic Chemical Reactions
A Study of Catalysis
A Study of Catalysis in the Decomposition of Hydrogen Peroxide
Effects of Catalysis in Formation of Phenol-Formaldehyde Resins
Association of Carboxylic Acids in a Two-Phase System
Thermodynamics of Orthophosphoric Acid and Its Sodium Salts
Sodium-Water Reaction
Reaction Kinetics
Attempted Chemical Reaction of Helium and Iodine
Investigation of the Silver Nitrate-Copper Reaction
Calculation of Decomposition Potential
Cuprous Halide Reactions With Iodide Compounds
Transformation Reactions
Determination of Mechanisms for Chemiluminescent Reactions Involving Luminol and Sodium Hypochlorite

Surface Chemistry

The Dispersion Phenomenon at the Interface of Two Immiscible Liquids
Stability of Selected Surfactant Formulations
Minimal Surface Area Experiments With Soap Films
Surface Films: A Key to Organic Structure
Observations of Adhesion Between Water and Glass
Studies on Formation of Metal Membranes on Glass
Analysis of the Surface Properties of Artificial Membranes Through Polymer Clogging
Study of Surface Area Agents

Thermochemistry

Effect of a Solute on the Change in Entropy of Water
Zeolite Molecular Sieves for Oxygen-Enriched Combustion in High Temperature Furnaces
Changes in Liquefaction With Changing Conditions
Ionization and Soot Deposition in a Premixed Flame
Maximum Heat Flux Values in Normal Liquid Helium for a Sphere Made of Oxygen-Free High Conductivity Copper
Prevention of Grain Elevator Explosions by a Suppression System
Thermal Homolytic Fragmentations of Cyclic Ozonides
Temperature Dependence of Ionic Mobility in Liquids
Research in the Phenomenon of Low Temperature
Calorimetric Study of Phase Equilibrium in Three Component Systems
Thermal Decomposition of Magnesium Oxalate
Various Factors Affecting the Sensitivity of a Flame Ionization Detector in a Gas Chromatograph
The Effect of Temperature on Chloride, Calcium and Water Activity With Isolated Frog Skin *in vitro*
Investigation of Controlled Oscillation of Ion Enriched Flame
Design and Construction of an Apparatus to Detect Explosive Gases
Research in Vapor Fractrometry
The Flickering Flame
Effects of Candle and Wick Diameter on Combustion Rate
Electrical Properties of a Gas Flame
Charge to Mass Ratio of Carbon Particles in Electrically Deflected Flames

Theory of Solution

Pressure and Its Effect on Solubility
Liesegang Banding: A Colloidal Phenomenon of Periodic Precipitation
Vapor Pressure Curves of a Solvent-Solution System
Determination of the Solubility Product of Strontium Chromate Using Spectrophotometry and Computer Analysis
Properties of Coal Particles Suspended in Black Wash Waters
Pressure's Effect on Solubility of Salts in Water
Effects of Ionic and Covalent Solutes on the Cohesive Strength of Water
Phase Transition Phenomenon in Hydrolyzed Polyacrylamine Gels
Properties of a Coacervate System
Viscosity and Conductance of Binary Solutions
Relative Solubility of Iodine Between Water and Carbon Tetrachloride
Determination of the Solubility of Lead Iodide Using Radioactive Iodine as a Tracer
Flux Lines and Solubility
Simple and Complex Solubility Effects in Halides of Transition Metals
Determination of Solubility of Gas in Water by Henry's Law
Some Aspects of the Relative Solubilities of Two Ionic Solutes in Water
Electrical Effects in Freezing Saline Solutions
Experiments Concerned With the Electrical Aspects of Ice Formation
Which Freezes Faster: Hot or Cold Water?
Ionization and Conductivity of Solutions
Relationship of Stabilization Intrinsic Viscosity of Polyvinylpyrrolidone to Molecular Weight in Aqueous Solution
Rate of Solution of an Ionic Compound as Affected by Its Initial Concentration
Factors Affecting Diffusion Rates in an Agar System
Gill Cage Diffusion of Oxygen
Diffusion of Carbon Tetrachloride Through Polyethylene

Reaction in Gels
Properties of Ionic Diffusion in Colloidal Silica
Diffusion of Electrolytes in Gels
Phenomena in Silica Gel
A Theory for the Formation of Liesegang Rings in Silica Gels
Electro-Freezing Used in the Separation of Aqueous Solutions
The Nature of Solutions Saturated in Two Salts Having a Common Ion
Spacing in Rhythmic Precipitation
Preliminary Investigation of Thioacetamide Addition Compounds in Sulfide Precipitation
Nature of Precipitate Formed by the Reaction of Lead Nitrate and Sodium Hydroxide in Aqueous Solution
Colloidal Diffusion

Electrochemistry, Electrolysis

Relationship Between Conductivity and Charge Capacity of Various Solutions
Electrolysis and the OH Ion in Magnesium and Magnesium Oxide Production
Power Control Occurring With Ionic and High Voltage Fields in Electrolytes and Ionized Materials
Studies of the Electron Transport Properties of Liquid Water
Laser-Induced Chemical Changes in Transition Ions
Photo-Electrochemical Decomposition of Water
Efficiency of Electrolytic Hydrogen Production
Effects of Temperature on Electrolytic Capacitors
Electrochemical Phenomena During a Low-Pressure Glow Discharge
Effects of Temperature and Normality Changes on Electrolysis of Certain Chloride Salts
Production of Sulfuric Acid by Electrolysis of Calcium Sulphate
Effects of Temperature and Concentration on the Conductivity of Electrolytic Solutions
How Molarity and Temperature Affect Electrical Conductivity of Electrolytes
Reaction Rates in Electrolysis of Salts of Acetic Acid
Speed of Ion Migration
Electrolytic Decomposition of Titanium Dioxide
Tester for Degree of Ionization
Extraction of Metallic Sodium by Ionic Transfer
Sodium-Amino Acid Linked Transport
The Influence of Certain Factors in the Operation of an Ion Exchange Column
Ion Exchange and Its Elution Properties
Isolation and Detection of Free Radicals
Rate of Electron Exchange Between Mercurous and Mercuric Ions
Ionization: Its Limitless Possibilities

Electrolytic Cells, Electrode Phenomena

Cathodic Protection
Development of a Battery Utilizing an Orange Juice Electrolyte
Development of Silver-Silver Chloride Electrodes
Plating and Testing Different Electrodes for Use as Anodes in Various Electrolytes
Construction and Testing of a Pb Ion-Selective Electrode
Preparation of a pH Stable Carbon Fiber Electrode
General Applications of a Homemade Silver-Silver Chloride Electrode and a Calomel Electrode
The Solid Electrolyte Cell
Electrochemical Cell Potentials and pH
Anode Corrosion in Electrolytic Solutions
Electrolysis of Aqueous Solutions of Organic Compounds Between Carbon Electrodes
Anodic Dissolution of Ni, Cd, Co, Zn and Mg in Acetonitrile
Electrochemical Cell Modification for Modern Applications
Cathodic Prevention of Electrochemical Corrosion
Sources of Electrical Energy
Primary Voltaic Cells
The First Battery
Batteries and How They Work

Polarography

Advanced Studies in the Double Layering Effects and Polarography
Determination of Phosphorous by Differential Pulse Polarography
Electrochemical Analysis by Polarography
Semi-Automatic Polarograph
A Polarographic Method of Analysis
Possible Use of Polarographic Methods for Determination of Dicyanoaurate (I) and Tetracyanoaurate (III)
Eyeing Ions: An Oscillographic Polarograph
Polarographic Analysis of Nickel Ores
Polarographic Oxygen Determination
Polarography: The Analysis of Copper
Spectropolarimetric Analysis of the Secondary Structure of Gramicidin-S and Tyrocidine-A

Magnetochemistry

Effects of a Magnetic Field on Reaction Rates of Ferromagnetic Elements

Radiochemistry, Nuclear Chemistry

Corrosion and Adsorption Studies Using Radiochemical Techniques
Radiomimetic Effects of Chlorambucil
Tracing Radioactive Phosphorus through Food Chain of Living Organisms Using a Tagged Isotope
Irradiation of Amino Acids
Effects of Radiation on Chemicals
Chemical Modification of Radiation Effects
Possible Interaction Between Organic Radicals Upon Irradiation of Amino Acids
Research Into Chemical Protection From X-Irradiation
Injected Chemicals, a Possible Safeguard Against Radiation

Photochemistry

Photochemistry: Polymerization and Laser Radiation

Photoelectrons and Thermal Electrons Emitted From a Potassium Surface
Photochemical System for the Storage of Solar Energy
Inducing and Determining Aspects of the Photochemical Decomposition of Hydrogen Peroxide
Ultraviolet Light Induced Reactions Between Thymidine and Lysine: Characterization of Photoproducts
Efficiency of a Photochemical Reaction Involving Trisetheylenediamene Chromium III
Photochemical Generation and Decay of Colored Intermediates
Photochemical Reactions in the Gaseous Phase
Determination of Threshold Frequency of Photochemical Reaction
Determination of the Decomposition of Silver Chloride as a Function of Frequency of Light
Photochemical and Radiation Response Characteristics of Pararosaniline Cyanide Solution
Photoreactivation

CRYSTALLOGRAPHY

Geometric and Mathematical Crystallography

Crystalline Symmetry
Crystal Systems
Relationship of Etch Pits to Crystal Symmetry

Crystal Structure and Growth

Growth of Gypsum Crystals
Effect of Radiation on the Growth and Structure of Crystals and X-Ray Diffractions
Crystallization of Metallic Strands Through Electrochemical Processes
Crystalline Growth Above the Solution Level Due to Capillary Action
Thin Layer Metallic Crystal Formation With Respect to Direct Current and Ultrasonics
Enhancing Eutectic Salt Crystallization Utilizing Seed Crystals
Effects of Macromolecules on the Growth of Hydroxyapatite Crystals
Structure and Arrangement of Ice Crystals in Water Film
Crystal Growth in Simulated Space Conditions
Morphology and Growth Kinetics of Gel-Grown Lead Dendrites
Crystal Structure of Monoclinic Sulfur at -160 Degrees Centrigrade
Application of the Variational Method to Perfect Crystals
Effects of Heat and Light on the Growth of Calcium Tartrate Crystals
Crystal Formation With Respect to Direct Current and Ultrasonics
A New Concept of Metallic Crystal Structure
Crystal Habit Modifications
Crystal Structures of the Elements
Crystal Nucleants
Development and Analysis of a Single Semihygroscopic Crystal
Effects of Additives on Crystal Growth
Investigating Possibilities of Changing Crystal Growth
Crystal Whiskers of Ionic Salts
Effect of the Degree of Supersaturation on the Relative Growth of Crystal Faces
Metallic Crystalline Growths in Gels
Factors Affecting Metallic Crystal Growth in a Silicic Acid Gel
Analysis and Possible Explanation of a Growth Characteristic of Magnesium Sulfate Hydrate Crystals
Effects of Electric Current on a Growing Sodium Chloride Crystal
Defects in Crystal Structure of Sodium Thiosulfate Pentahydrate
Crystals and Crystalline Imperfections
Impurities in Crystals
Experimental Growth of Metal Whiskers
Growth and Properties of Metal Whiskers
Observation of Axial Domain Wall Propagation in Thin Iron Whiskers
Function of Metal Whiskers Growth in Corrosion Processes
A Modified Vapor Growth Process for the Crystallization of Zinc Sulfide

Liquid Crystals

The Interplanar Distance in a Cholesteric Liquid Crystal
Computer Apparatus to Study Liquid Crystals
Electro-Hydrodynamic Instability in a Nematic Liquid Crystal
Liquid Crystals: X-Ray Effects on Reflected Light Intensity
Floating Crystals
Study of the Effects of Histamine Using Liquid Crystals
Synthesis and Investigation of Cholesteric Liquid Crystals

Physical Properties of Crystals

Physical Characteristics of Elemental Whisker and Polycrystalline Cadmium
Thermal Diffusivity of Dispersed Copper Whisker Composites
Electrical Characterization of Polycrystalline Silicon
Relaxation of Nickel Crystals Using the Morse Potential
Study on the Triboluminescence of Crystals
Liquid Crystallization: Synthesis and Isometry of Optically Isotropic Bodies
Effects of Copper (II) and Hydroxide Ions on the Habit of Rochelle Salt Crystals
A Study of the Structures of Metallic Crystals and Their Mechanical and Electrical Properties
Effect of Magnetism on Crystals
Correlation of the Index of Refraction, Molecular Weight, Lattice Spacing and Density in Cubic Crystals
Angular Variation: An Experiment in the Refractive Indices of Crystals
Bragg Reflection Using a Stimulating Crystal Lattice in a Ripple Tank
Piezoelectricity in Rochelle Salt
Phosphorescent Calcite at Cryogenic Temperatures

Crystal Studies of $NaClO_3$, Including Effect on Plane-Polarized Light, Crystal Symmetry
Magnetic Properties of Pantaerythritol Crystals
Resonance Properties of ADP Crystals
Effects of Electric Field on Light Propagation Through Pure and Semi-Pure ADP Crystal
Effects of X-Ray on Crystallization
Kinetics of Sulfur Crystallography

Chemical Crystallography

Experimental Analysis of Crystal Dehydration
Crystallographic Study of cis,cis-1,3,5-Tris(salicylaidimino)-cyclohexanecobalt(III)
Crystalline Allotropes of the Sulfur Family
Chemical Crystallography
Original Experiments With Crystals
Migration of Negative Crystals
Influence of Borate Ion on Crystalline Habit of Sodium Chlorate and Sodium Bromate Crystals
Crystallographic Analysis of Synthesized Organic Compounds
Effect of Cupric Ions on the Crystalline Habit of Tartrate Compounds
Determining the Critical Point of Crystallization for Calcium, Copper Acetate $.6H_2O$
Effect of Low Temperatures on the Decay of Silver Centers in a Silver Bromide Crystal

GEOLOGY — QE

Remote Sensing and the Remote Sensory Balloon
Portable Geology Laboratory
Experimental Geology
Historical Geology
Geologic Mapping
Stream Table Geology
Geology of the Coastal Plain
Geology of the Capitan Reef Complex, Eddy County, New Mexico
Geology of McKean County and the Kinzua Dam Area
The Geology of Tennessee With Emphasis on Middle Tennessee

MINERALOGY

Determining a Mechanism for Triboluminescence
Analysis of Plagioclase Feldspar by Means of X-Ray Diffraction
Effect of Some Compositional Changes on the Fluorescent Spectra of Scheelite Group Minerals
Microscopical Identification of Rock Minerals in Thin Sections and Mineral Grains
An Examination of the Diffraction Patterns of Quartz Fibers
Use of Centrifugally Accelerated Paper Chromatography in the Geological Mineral Analysis of Fe^{3+} Ion
Separation of Dolomitic Limestone Impurities From Florida Phosphate Rock
Comparison of the Mossbauer Spectra of Pyrite and Marcasite
Morphogenesis of Spherulites, Utilizing X-Ray Microanalysis
Determination of Age of Mica With Fossil Fission Tracks
Analysis of a Complex Pegmatite, the Paragenesis of the Strickland Quarry
Minerals Found in the Woburn-Wilmington-Reading, Massachusetts, Area
Analyzing Earth Materials With Sound
Effects of Ultraviolet Light on Various Minerals
Fluorescence of Minerals
Quartz
What Are Minerals?
Minerals: Servants of Mankind
Collecting and Studying Serpentine Minerals
Our Paleozoic Calcites
Moh's Hardness Scale
Zeolite Synthesis in the $NaOH-NaAlO_2-SiO_2-H_2O$ System
Liesegang Rings and Agate Banding
Luminescent Mineral Variables Due to Microbial Activity and the Geomicrobial Recovery of Metals From Low Grade Luminescent Ore
Liesegang Rings: Theory and Application to Banded Rock

PETROLOGY

Method for Identifying Igneous Rocks by Comparing Densities
Selachian Fauna in a Greenhorn Limestone Deposit in Eastern Nebraska
Effects of Firing on the Petrophysical Properties of Reservoir Rocks
Effective Flocculation of Colloidal Clays in Mine Tailings
Geological Survey of the Bronx Bedrock Formation
Comparative Analysis of the Physical Properties of the Black and Yellow Sands of Yabucoa
Provenance of Igneous Pebbles in Terrace Deposits of Tuscaloosa County, Alabama
Petrology and Structural Aspects of Precambrian Sills in the Pony Gneiss of South London Hills, Madison County, Montana
Rock Collection
Study of Rocks
Rocks in Natural State
Story of the Earth as Told in Rocks
Reactions of a Metal Detector to Rocks and Minerals
Classifying Rocks in the Southeast Alabama Coastal Plain
What Is the Story of Georgia as Told by Its Rocks?
The Lockport Dolomite Deposition

DYNAMIC AND STRUCTURAL GEOLOGY

Development of Life and Landforms in Georgia's Valley and Ridge Province
Geotectonics and Global Lithospheric Dynamics
Plate Techtonics and the Dynamics of Lithospheric Plate Movement
Development of a Radiocarbon Dating Process Suitable for Field Use
A Possible Ophiolite Sequence at Frency Butte, Oregon
Geological Time Table

The Earth's Interior
The Earth's Heat at Work in the Crust
Phenomena of the Fluvial Geomorphic Cycle
Sections of Earth
A Micro-Tectonic Study of Horizontal Compression
Projectile Points of Canyon Lands
Formation of Mountains
Continental Drift as Caused by Convection Currents
Heat Zones of the Earth

Geochemistry

Evaluating the Environmental Sensitivity of Silicious Materials
Effects of Gravitational Force Upon the Evolution of Organic Asymmetric Compounds
Geochemistry of Organic and Metallic Compounds in Coals, Shales and Limestones
Pyroxene as a Geochemical Thermometer
Biochemical and Geochemical Analysis of Fossils

Volcanoes, Earthquakes, Seismology

Earthquakes and Ocean Rifts: Is There a Connection?
Defining the Role of Plate Tectonics in Volcanic and Seismic Cluster Periods
Body Wave Speeds Resulting From Earthquakes
Earthquakes and Different Prediction Methods
A Fourier Spectrum Analyzer of Seismic Waves and Structural Motion
Solid State Nuclear Track Detection of Subterrestrial Flow of Radon as a Precursor of Seismic Events: A Four-Site Analysis
Effects of Radiation and Temperature Surrounding the Hot Springs in Hot Springs National Park, Arkansas
Relation Between the Moon and Earthquake Activity
Developmental Design of a Computer Interfaced Seismograph
Why and When of Volcanic Eruptions
The Effect of Active and Extinct Volcanoes
Cross-Section of a Volcano
The Growth of a Volcano
Geysers, Showing Underground Structure
Diastrophism: Volcanoes
Earthquake and Its Recording
Earthquake and Shifting of Rocks
Experiments With My Seismograph
Amateur Seismology
Mechanical-Optical Seismograph
An Electronic Seismograph
Bosch-Omori Seismograph

Sedimentation

Motion of a Glacier on a Non-horizontal Base
The Formation of Micro Rills Leading to Soil Erosion
Identification and Examination of Denitrification Processes Occurring in an Anoxic Basin of the Pettaquamscutt Estuary
Soil Erosion
Rocks and Soil
Development of Alluvial Terraces
Formation of Hanging Valleys
Changes in the Profile of a Valley
Model of an Alluvial Fan
Stream Erosion and Deposition
Erosion and Formation of Canyons
Sand Erosion

STRATIGRAPHY

Biostratigraphic Investigation of Ostracodes of the Bloomsbuerg Formation in the Allenwood Quadrangle of Pennsylvania
The Stratigraphy and Paleontology of the Mid-Silurian Liston Creek Limestone
The Jurassic Period
Environmental Changes in Jurassic and Triassic Strata
Stratigraphy and Paleogeography of the Upper Guadalupian Series, Eddy County, New Mexico
Stratigraphy and Paleontology of the Lower Devonian
Correlation: A Comparison of Geologic Sequences

PALEONTOLOGY

Microfossil Shape Analysis Using Laser Shadow Contouring
Paleopedological Investigation of an Altithermal Paleosol in Northwest Iowa
The Waldron Shale: Faunal Interpretation of a Fossiliferous Silurian Formation
Life Through the Ages
Fossils as Indicators
Fossils: Our Link With the Past
Using the Acetate Peel Method In Paleontology
Fossils of the Ripley Formation, Coon Creek Locality
Paleobiochemistry
Prehistoric Animal and Plant Life
Preserved Impressions in Rock
Methods of Preparation of Fossil Material
Index Fossil Used to Determine Origin of Local Fossils
Environmental Changes Between Late Jurassic and Late Cretaceous Periods
Facets of Amateur Paleontology
Marcasite Fossils of Alden, New York
Evolution of Porphyrins in Fossils: Discovery of a New Porphyrin
Paleoenvironment of a Regressive Pleistocene Sea

Paleoecology

Probable Chemical Effects on the Paleoecology of New Scotland (Lower Devonian) Brachiopods
Paleoecology of the Keasey Formation Near Mist, Oregon
Paleoecologic Analysis of Brachiopod Morphology and Distribution in the New Creek Limestone (Lowermost Devonian) at Altoona, Pennsylvania
Paleoecology of the Mud Nassas in the Purisima Formation
Paleoecology of a Centerfield Biostrome

Oligocene Ecology of Nebraska
Paleoecology of Fossil Lake

PALEOZOOLOGY

Identification of Amino Acids in Late Pleisocene Brachiopods and Comparison With Amino Acids Found in Terebratulida
Statistical Analysis of Length to Width Ratios of Brachiopods
Regional Correlation by Invertebrate Paleontology
New Records and Descriptions of Upper Cretaceous Serpulid Worms From the Mooreville Chalk, Greene County, Alabama
Changing Lunar Periodicity as Shown by Mississippian Coral
Miocene Fossil Mollusks
Miocene Sediments of Nomini Cliffs, With Comparison of Vertebrate Fossils From Calvert and Choptank Formations
Proboscidean Remains From the Santa Fe Formation
Quantitative Study of the Mollusk Population of Lower Calvert Formation
Amino Acid Content of Fossilized Pelecypods
Fossils of the Strasburg Area
Fossil Animal Collection
Devonian Corals of the Allegheny Dam Area
Animals of the Mesozoic Era
Destruction of Prehistoric Animals
Prehistoric Birds
Collection and Classification of Some Invertebrate Fossils
A Statistical Analysis of Fossil Species
Pentremites, Apex of the Blastoids
Variation in the Devonian Fossil Sponge, Hydnoceras

PALEOBOTANY

Palynology: A Source of Studying the Past
Paleobotany: Study of Seeds From Pitfills of Early Indian Sites
Fossil Floras of the Clarno Formation Near Pilot Rock, Oregon, and Their Implication on the Climatic Change in the Early Oligocene of Oregon
Analysis of Palynomorphs Collected From an Ordovician Stratigraphic Section
Palisades Mudflow Flora of the Clarno Formation, Oregon
Climatic Changes in Nevada as Indicated by Paleobotany
Fossil Pollen Identification of Post-Glacial Vegetation in Five Wisconsin Peat Areas
Palynology: An Effective Window Into the Past
Petrification of Wood

NATURAL HISTORY (GENERAL) – QH

Order in Nature
Nature's Most Perfect Creation
Preservation of Biological Specimens by a Protective Coating
How to Make A Collection of Biological Specimens for a School Museum
Increasing the Carbon Dioxide Concentration Factor in an Aquarium
Beginnings in the Study of Biochemistry
Hypothetical Life Forms and Environments by Computer Simulation

PHYSIOGRAPHIC DIVISIONS

Water. Aquatic Biology

Digital Simulation of River Plankton Population Dynamics
A Limnological Profile of Lake San Domingo
Limnological Investigations of a Formerly Saline Pond With Emphasis on Nektonic Fauna
Study of Freshwater Pond Life: Its Classification and Interrelationships
Limnology of the Pit River, California
Limnology of a Florida Lake
Limnological Study of a Farm Pond
Physical Properties of Ice
Exploring Tidewater
Physiological Effects of an Environment of Saturated Color on Aquatic Organisms
A Winter Study in Limnology

MICROSCOPY

Photographing a Microscopic Universe
Using Laser Speckle to Detect Slow Microscopic Motion
Magnetic Lensed Transmission Electron Microscope
Optoacoustic Microscopy
Application of Electron Microscopy Techniques to a Study of Micro-Mineral Growth
Design and Construction of an Electron Microscope for High Magnification
The Color Electronic Microscope
Experimental Flying-Spot Electron Microscope
Microscopic Slides in Plastic
Box Camera Photomicrography
Photomicrographs of Cactus Seeds
Microscopic Study of Pollen Grains
Differences Between Human Hair and Other Mammal Hair
Have You Really Seen the Food You Eat?
Microscopic Aquatic Growths
Studies of Codium fragile Through Fluorescence Microscopy
Microprojector
Water Drop Microscope
Through the Lens of a Microscope
The Construction of a Compound Microscope
Vidicon Microscope

BIOLOGY (GENERAL) – QH

Structure and Biological Activity

EVOLUTION

A Use of a Mathematical Model and Computer to Demonstrate Evolution in an Imaginary Species
Characterization of a Cell Line Established From Hybrid Embryos
Mathematical Examination of the Evolutionary Process
A Computer Examination of Evolution

Polyploidal Hybridization
Hybrid Ploidy Determination
An Investigation of Evolution
Behavior - Evolution - Mutations
Bacterial Evolution
Bacterial Species Transformation

SPACE BIOLOGY

Protein Changes in Gravistimulated Cereal Grass Shoots on Earth With Possible Application in Space
Experiment in G Forces
Effects of Geotropic Inhibition Through Simulated Weightlessness on Plant Growth Characteristics
Centrifuge for Man or Mouse
Effect of a Simulated Martian Environment on *Paramecium caudatum*
Plants Into Space
Experimental Exobiology
Biological Effects of Acceleration
Investigation of Algal Cultures for Use in a Closed Ecological System
New Type Algae for Space Travel
Can Algae be Used as an Efficient Means of Producing Oxygen and Food Nutrients in Space Travel?
Gas Exchange for Space Travel

GENETICS

Applications of Computer Programming in Genetics
Investigation and Genetics of Isosepiapterin Production in *Drosophila melanogaster*
Physiology and Genetics of the Lac Operon in *Escherichia coli*
Genetics and Methodology of Paternity Evaluations
Genetic Analysis of the Che-G Locus of *Salmonella typhimurium*
Investigation Into the Genetic Effects of Dimethyl Sulfoxide
Genetics and Variation of Colias Butterflies
The Mathematics of Genetics
Population Genetics
Genotypic Riddle
The Genetics of Tongue-Curling
Coat Color Genetics of the Rat
"Black" Genes
Drosophila Genetics
Genetics, Disease and Hemoglobins
Survey of Genetic Traits in a High School Population
Genetics of the Bacterium Pseudomonas
Modified Method of Paper Chromatographic Analysis of the Genetic Structure of *Drosophila melanogaster*
Genetic Study of Peppers
Genetic Study by Means of Paper Chromatography
Genetics and Guppies
Modification of the Viability of a Semilethal Genotype of the Mouse
DDT Resistant Drosophila and Genetic Study
Effects of Radiation on the Genetic Characteristics of Drosophila

Heredity and Environment

Fingerprints Pertain to Heredity
Inheritance of Monoterpenes and Needle Characteristics in Serbian X White Spruce Hybrids
Inheritance of an Eye Defect in Hamsters
Inherited Tail Lengths of Manx Cats
Mendel's Law of Heredity
Human Heredity
Heredity in *Paramecia*
Intelligence Inheritance
Biochemical Variants and Heredity
Heredity's Role in Blood
Nutritional and Heredity Studies of Mice and Rats
Transfer of Acquired Reflex by Heredity

Genetic Engineering

Construction of a Chimeric Plasmid Suitable for Cloning the Methanol Dehydrogenase Gene of Pseudomonas TPI
Nuclear Cloning (Cell Transplantation) in *Gallus domesticus*
PEal(h) Genome and Cloning Techniques

Recombination Mechanisms

How to Overproduce a Restriction Enzyme Using Recombinant DNA Techniques
Increased Recombination Frequency in *Escherichia coli* Uracil-DNA Glycosylase (*ung*) Deficient Mutants
Genetic Control of Constricted Hairs in Mice
Effect of Nuclear Protein and DNA Methylation on Gene Expression in Cancer Cells
Application of Restriction Fragment Length Polymorphisms to the Detection of Genetic Variation Between Closely Related Members of a Single Species
A Comprehensive Analysis of Bacteriophage DNA Recombination and Back Mutation While Being Subjected to Diversified Magnetic Fields
Replication of Recombinant DNA Plasmid, pBR322, in a Stable DNA Replication Mutant of *Escherichia coli*
Acquisition of Cancer by Genetic Recombination Between *Agrobacterium tumefaciens* and *Escherichia coli*
Detection of Recombination in the T4 Bacteriophage
Mode of Inheritance of Strain Specific Variations in Folial Patterns of the Mouse Cerebellum
Recombination Tests Using the RII B41 and RII B1229 Mutants of the T4 Bacteriophage
Gene Mechanisms Regulating Protein Synthesis
A Study of Linkage, Crossing Over and Genetic Concepts Using *Brassica campestris*
Gene Transfer in *Bacillus alcalophilus*
Nonacceptance of the Lac+ Gene From an *Escherichia coli* Donor by Infected *Salmonella typhimurium*
Effect of a Magnetic Field Upon the Gene Frequency of *Drosophila*
Transduction in Bacteria

Mapping of *Escherichia coli* K-12 Chromosome Using Genetic Recombination
Studies of Genetic Recombination and Mutation in *Escherichia coli* K-12
"Lac" z and i Genotype Determination in Four Strains of *Escherichia coli*
Susceptibility of *Drosophila* Alleles to X-Rays
Testing of *Crypthecodinium cohnii* Dinoflagellates (Y Breeding Group) for Genetic Linkage
Genetic Code: Language of Life
Determination of Linkage Between Two Genetic Markers
Determination of the Genetic Loci of Suppressor Genes in *E. coli* K-12
Comparison of Genetically Controlled Characteristics
Development of a New System for Predicting Results of Polyhybrid Genetic Crosses
Linkage Studies With the Whirler Gene in the Mouse
Mode of Action of the Brachymorphic Gene in the Mouse
Genetic Influences and Other Studies on Erythropoietic Stimulating Factor in the Laboratory Mouse
Determination of Locus of the Gene Causing Baldness in *Drosophila melanogaster*
Genetic Regulation in Development
Genetic Analysis of a New Trait Found in *Drosophila melanogaster*

Mutations

Mutant Survival
Detection of Mutagens in the Catalytic Converter Catalyst
Mutagenesis: A Screen for Carcinogenesis
A Chromatographic Investigation of Cell Mutations
An Ulta-Sensitive Mutagenesis Assay System for *Drosophila melanogaster*
Development of Mutants to Elucidate Prodigiosin Biosynthesis by *Serratia marcescens*
Activity of Antimutagenic Agents in the L5178Y Mouse Lymphoma Mutagen Assay System
Influence of Carbohydrate Sources on Gamma Radiation Induced Mutations in *E. coli*
Synergistic Effects of Vitamins E and C on Mutagenicity
Detection of Mutagens by a Salmonella Thin Layer Chromotography System
Uptake of Antibiotics in Mutants of *Escherichia coli* Altered in Outer Membrane
Benign Mutations in the Tetracycline Resistance Gene
Variations in the Phenotypic Expression of Antimicotic Production of *P. syringae* Mutants Derived From *E. coli* Transposition
Mutagenic Effects of Various Asbestos Fibers on *in vivo* Macrophage Cell Cultures
Mutagenic Effects of Microwave Radiation on *Drosophila melanogaster*
Analysis of Asporugeneous, Nalidixic Acid Resistant Mutants of *Bacillus subtilis*
Isolation of DNA From Two Thymidine Kinaseless Mutants of Herpes Simplex Virus Type I
Mutations Induced by Specific Wavelengths of Laser Light
Mutagenic Effects of Store-Bought Saccharin on the Salivary Gland Chromosomes of *Drosophilus virillis*
Ozone Layer Deterioration: Mutagenic Effects of Sublethal UV-B Radiation on *Pseudomonas aeruginosa*
Effects of Streptomycin on the Mutation Rate of Irradiated *Serratia marcescens*
Isolation of a Trimethoprim Resistant Mutant of *Escherichia coli*
Isolation of the Cyclic Nucleotide Mutants of *Phycomyces blakesleeanus*
Mutation of *Drosophila melanogaster* Through Controlled Magnetic Radiation
Bacterial Mutation: Retention of Artificial Characteristics
Pigmentation in Bacteria Induced by Mutations
Attempt to Isolate a Tryptophan Producing Mutant of *Bacillus subtilis*
Biochemical Equivalent of a Human Disease in a Mutant Strain of Bacteria
A Study of Microbial Mutations
Induced Mutations
Artificial Genetic Mutations
An Analysis of Mutation Artificially Induced in *Drosophila melanogaster*
Mutagenic Thymine Derivatives
Examination of Bacterial Mutants Obtained by Exposure to Ultaviolet Radiation
The Mystery of Mutations
Possible New Mutation of Hamsters
Mutation of *Agrobacterium tumefaciens* by Ultraviolet Irradiation and the Effect of Urethane on the Mutation Rate
Mutagenic Effect of Monochromatic Ultraviolet Light
Mutations of *Drosophila* From Exposure to Color TV Radiation
Toxic and Mutagenic Effects of 20-Methylcholanthrene Introduced Into Cultures of Normal Human Leukocytes
Euglena gracilis Mutation Induced by Far Ultraviolet Radiation
Tracing a Mutation in *Neurospora crassa*
Reproduction and Concentration of Mutations in Guppies

Cytoplasmic Inheritance

Does the Reproduction of Cilia Depend on Cytoplasmic Inheritance?
Construction of Recombinant DNA Plasmids
Genetics of Bacteria-Plant Interaction: Transfer of Nodulation Plasmid Between *Rhizobium* Species

REPRODUCTION

Supportive Evidence for a Theory of Sexual Reproduction in *Chlorella pyrenoidosa*
Parthenogenesis: A DNA-Caffeine Comparison
Environmental Effects on Parthenogenetic Reproduction in *Daphnia*
A Theory in Parthenogenesis

REGENERATION

The Electrical Stimulation of Regeneration

Factors Affecting Regeneration of the Earthworm
Acetylcholine and Its Role in the Regeneration of Planaria
Planarian Regeneration: A Biochemical Inquiry Into Influencing Factors
Rate of Regeneration of Eyespots in Planaria
Regeneration of the Caudal Region of Xiphophorus helleri and Xiphophorus maculatus
Correlation of Effects of Carbon Dioxide and Bioelectricity on Regeneration
Effect of Gamma Radiation on Regeneration Rate of Planaria
Effects of Radiation on the Regeneration of Planaria

LIFE

Setting Biological Clocks With Photoperiods
Studies of the Bioluminescent "Clock" of Gonyaulax polyedra
Magnets and Life
An Abnormal Photoperiodic Rhythmical System Causing Abnormalities in the American Cockroach, Periplaneta americana
Tropism and the Relative Effect of Plant Growth Regulating Substances
Bacterial Aging by Changes in Antimicrobial Susceptibility of Escherichia coli
Endogenous Circadian Rhythm in Phaseolus vulgaris L. Grown Under Continuous Light: Evidence of a Biological Clock?
Effects of Mineral Matter on Origin of Life
Amino Acid Formation in a Primitive Earth Atmosphere
Synthesis of Amino Acids Under Simulated Primitive Earth Conditions
Does Composition of Primitive Atmosphere Affect Amino Acid Yield?
Synthesis of Siliconated Glycine Under Possible Primitive Earth Conditions
Production of Organic Compounds Under a Varying Simulated Primitive Earth Environment
Life in a Test Tube: Not to Create Life, But to Preserve It
Comparison of Life Processes in Plants and Animals
Tropism Equalizer
Centrifugal Force Versus Geotropism
Protoplasm Growth Versus Environment
The Stomatal Clock
Biological Clocks

ECOLOGY

An Ecological Survey of a Given Area of Land
Ecological Comparison of Area Lakes
Ecology in Miniature II: A Chemical Ecological Study of a Pond Leaf Infusion
Ecological Study of a Texas Beach
Ecological Study of the Intertidal Fauna of the Yaquina Bay North Jetty
Ecological Relationships Between Blue-Green Algae, Amoebae and the BGA Virus LPP-L
Study of Ecological Recession
The Five Life Zones of New Mexico
An Ecological Study of the Lizards in a Desert Wash
Environmental Ecology of Pond Animals
Ecological Study of Desert Fairy and Tadpole Shrimp
Ecological Study of the Rodents of the Chaparral
Effects of Environmental Changes on Pill Bugs
An Ecological Study of an Eutrophic Lake
Forest Food Chains
Animal and Plant Communities
Field Study in Ecology
Ecological Study of the Modern U.S.
Limited Ecological Study of Five Biotic Communities in Albany County, Wyoming
Aphids and Their Ecology
Distribution and Ecology of Haustorius arenarius
The Story of a Lake: An Ecological Study on Film
An Ecological Study of a Dry Lake

Influence of Special Factors in the Environment

Varying Effects of Herbicides on Non-target Aquatic Animal Species
The Effects of 2,4-Dichlorophenoxyacetic Acid on Semotilus atromaculatus, Creek Chub
Studies of Possible Ecological Effects of Two-Cycle Marine Engine Exhaust
Aquatic Organisms' Environmental Changes Incurred Through Petroleum Related Pollutant Exposure
Effect of Cryogenic Temperatures on Biological Systems
Effect of Light and Organic Nutrients on Aquatic Ecosystems
Effects of Environmental Factors on the Ecology of Marine Tide Pools
Chemical and Biological Environments of a Small New England River
Function of Man in the Ecology of the Moorefield River
Effects of a Hostile Environment on Life
Relation Between Rate of Contraction of the Contractile Vacuole of the Paramecium and the Conditions of Its Environment
Effects of Abiotic Environmental Factors on the Population Phase Patterns of Saccharomyces cerevisae

CYTOLOGY

Methods of Research

Development of a Techique to Assay Chromatin Proteins
Electrical Cell Hybridization and the Discovery of a New Cell Line
Symmetrical Tracking of Post-Mitotic Naeglaeria gruberi Daughter Cells
Hybridization of Somatic Cells and Their Subsequent Cytopathic Response to Virus Challenge
Study of the Surface Structure of Human Glioma Cells With Scanning Electron Microscopy
Effect of Cell Culture on Cell Antigens

Nuclear Extrusion in Dissociated Rat Heart Cells
Decrease of Oxygen in Muscle Cells and Their Response to Artificial Stimulation
In vitro Study of the Factors Determining Protein Production in Mouse Spleen Cells
Cellular Growth in a Test Tube
Immunochemical Study of Microsomal Subfractions

Protoplasm. Cytoplasm

Induced Interfamily Fusion of Plant Protoplasts
New and Improved Experiments With Plant Protoplasts
The Isolation, Adhesion and Fusion of *Glycine max* and *Hordeum vulgare* Protoplasts

Chromosomes

Chromosome Breakage in Human Lymphocytes
X-Ray-Induced Chromosome Aberrations of Human Peripheral Leukocytes
Computerized Chromosome Pattern Recognition
Ordering Genes in the Lon Region of Bacterial Chromosomes
Homologue of the Segregation Distorter Chromosome in *Drosophila melanogaster*
Mapping of Mutagen-Sensitive 108 on the X Chromosome of *Drosophila melanogaster*
Human Chromosome Fragile Sites and Markers
Consistency of Fragile X Chromosome Frequency
Isolation of the Y Chromosome Sperm for Sex Determination
How Can Chromosomes be Studied?
Budgerigar Chromosomes
Some Structural Aspects of Chromosomal Synapsis
Aberrations in *Drosophila* Chromosomes Induced by Radiation
Mitotic Chromosome Study of the Parakeet
Can Chromosome Length be Altered Chemically?
Chromosomal Studies of HeLa Cell Cultures
Comparative Cytology of Salivary Gland Chromosomes From Normal 3 Induced-Tumor, and a Spontaneous Tumor Strain of *Drosophila*
Growth Patterns and Chromosomal Aberrations in Plant Cells in a Liquid-Medium Tissue Culture Environment
Sequential Replication of Chromosomes

Cell Membranes. Liposomes

Model System for Facilitated Diffusion of Glucose Across Cell Membranes
To Search for Extensin Cross-Linked Peptides in Tomato Cell Walls
Effect of Light on the Permeability of the Lettuce Plant's Root Tip Cell Membrane by Way of the Phytochrome System
Dynamic Pressure Test Cell for Reverse Osmosis Membranes
Ion-Biomembrane Interactions
Active Transport of Ions Across Cell Membranes: Specific Study of Kidney Membranes

Mitochondria

Effects of Chemicals and Acid Indicators on Mitochondrial Functions
Characterization of Valinomycin Induced Transport of Potassium Ions Across the Mitrochondrial Membrane
Structural Changes in the Mitrochondria Brought About by 5-Hydroxytryptamine
Quantitative Study of Mitrochondria in Lymphocytes of Mice
Regulation of Oxidation and Phosphorylation Mitrochondria
Fatty Acid Oxidation in Kidney Cortex Mitrochondria of Normal and Fat Deficient Albino Rats
Mitrochondrial Swelling and Contraction

Aging of Cells

Influence of Amino Acid Analogues on Cellular Aging
Morphological, Biochemical Immunological and Antigenic Changes in Normal Human Fibroblasts During *in vitro* Cellular Aging

Physical and Chemical Properties

Observing Cell Spectrum Using Laser Light
Cellular Automata Configuration Theory
Phosphodiesterases in 3T3-L2 Cells

Physiological Properties

Bioluminescence in Fireflies and *Photobacterium fischeri*
In vitro Characterization of Adult Rabbit Lung Cells
Response of Interferon-Sensitive and Interferon-Resistant Human Daudi Cells to Human Interferon
Role of $H1^{0}$ in Mammalian Cells
The Role of Calcium in Melanophore Dispersion
Release of Carrot Cell Vacuoles
Identification of Beta-Adrenergic Receptors in a Non-fusing Muscle Cell Line
Endocrine Involvement in Chromatophore Responses and Osmoregulation of *Ocypode cordimana*
Fluorescence Measurements on *Escherichia coli* Ribosomes
Role of Vanadium Compounds as Electron Donors for Photosystem I in Spinach Chloroplasts
Control of Cellular Respiration
Cells Without Walls
Is Cellular Sex Consistent?
Development of Organisms From Cell to Systems
Normal and Abnormal Cells
Sex Differences in Cells
Cellular Protectors and Scavengers of the Human Body
Synthesis and Study of Firefly Luciferin
Bioluminescence
Morphogenic Movements of Cells in the Japanese Medaka Embryo
Properties of the Hyaline Plasma Membrane of the *Lytechinus variegatus*

Plant and Animal Cells
Types of Typical Cells
Cytological Basis of Coloration in *Fundulus heteroclitus*

Effect of Physical and Chemical Agents on Cells

Interaction of Alcohol and Aspirin on Brain Cell Cultures
Effects of a Mutagen on Mitosis: Is Cytokinesis Absent?
Effects of Light Signals of Different Intensities on the Circadian Rhythm of Cell Division in *Euglena gracilis* (Z)
Use of Antioxidants for Protection of Tissue Cells From Damage Caused by Ultraviolet Radiation
Effects of a Magnetic Field Upon Chromosome Aberrations in *Drosophila*
Effects of Selenium on Cells in Culture
Effects of Gamma Radiation on Onion Root-Tip Cells
Cellular Responses to Growth Regulatory Substances Found in Kentucky Wonder Beans
Causes of Photodynamic Damage and Its Amelioration: An Assay Using Dissociated Cardiac Myocytes
Characterization of an Inhibitory Factor in MLA-S Supernatant Solution Affecting Proliferation of B6D2F1 Mouse Bone Marrow Cells
Evaluation of the Combined Effects of Radiation and Poly(ICLC) on Mouse Cells Using a Rapid Screening Method
Cell Division in *Escherichia coli* During Inhibition of Phospholipid Synthesis
Effects of a Nutritional Shift-Up on the Rates of Cell Division of *Escherichia coli*
Effect of RNAase and DNAase on the Growth of Chick Embryo Cells
Effects of Growth-Promoting Factors on Mouse Heart Cells
Effects of Twelve Commercial Peptones on the Proliferation of Strain L (Earle) Mouse Cells
Effects of Heparin and Heparin Antagonists on the Growth Rate of McCoy and HeLa Cell Lines in Tissue Culture
Effects of Identical Chemicals on Plant and Animal Cells
Dimethylsulfoxide and Cell Transport
Effect of Histones on Cell Differentiation
Effect of Ciliary Apparatus of *Stentor coeruleus* on Mitosis of Micronuclei
Sonic Oscillation as a Method of Cellular Disruption
Effects of Radiation on Cells
Effects of Cooling on Radiation Damage to Living Cells

BOTANY — QK

COLLECTING AND PRESERVATION

Different Kinds of Nuts
Leaf Prints
Flowers of the States
Vanishing Wild Flowers
Leaf Collection
Wood, Twigs, Bark
Wood Collection
Some Common Garden Flowers
Miniature Garden, Creation of a Rocky Canyon
A Woodland Terrarium
Butler County Wildflowers

CLASSIFICATION

Plant Taxonomy Through Paper Chromatographic Analysis of Glycerophosphatides and Glycolipids
Classification of Alabama Bryophita and Lichens
Interspecies Relationships in Plants
Taxonomy of *Cladonia cristatella* (Lichens)
Plant Kingdom
An Investigation of a New Method of Yeast Taxonomy

POISONOUS PLANTS

Plant Study of *Tetrapanax papyriferum* and Its Toxic Effects
Isolation of Plant Fractions Toxic to Insects
Are Rhubarb Leaves Poisonous?
Toxicity of Plants
Effects of a Metabolic Poison on Foliar Absorption of P-32 and Its Distribution in Bean Seedlings

SPERMATOPHYTA. PHANEROGAMS

Trees and Shrubs

Utilizing Dendrochronology to Determine Lead Concentrations From Automobile Exhaust Emissions

Gymnosperms

Gymnosperm Cell Wall Analysis

Angiosperms

Study on Duckweed
A Comparative Serologic and Electrophoretic Investigation of the Juglandaceae
Will Cattails Ease the Energy Squeeze?

CRYPTOGAMS

Pteridophyta. Ferns

Morphogenetic Studies on Tissue Cultures of the Fern, *Polypodium sanctae rosae*
Effects of Photodynamic Variation on the Morphogenesis of the Sexual Fern
Chemotaxonomical Relationship Between the n-Alkane Distributions in the Cuticle Waxes of Various Ferns and Palms
Influence of Filtered Light on Gametophyte and Sporophyte Development of *Marsilea vestita*
Fabulous Fading Ferns

Bryophyta. Bryology

Comparative Study of the Effects of Various Nutritives on Certain Bryophytes

Musci. Mosses

Allelopathy of Moss on Microorganisms
Effects of 3-Indoleacetic Acid on the Gametophyte of the Moss Brachythecium spp.
Moss Garden

Algae and Algology

A Study of the Sulfur Requirements on Chlorella vulgaris
Optimizing Rate and Quantity of Hydrogen Photoproduced by Marine Algae
Composition of Glycoprotein in the Extracellular Matrix of Volvox
Role of Membranes and Microtubules in the Circadian Rythms of Gonyaulax polyedra and Crypthecodinium cohnii
Isolation and Partial Characterization of DNA in Oil Producing Algae
Bactericidal Effect and Biological Assay of Different Marine Algae Extracts
Effects of Nalidixic Acid on Chloroplast DNA Content and Growth Rate of Chlamydomonas reinhardi
Effect of Malathion on the Chlorophyll Content of Algae
Influence of Varying Environmental Phosphate Concentrations on the Lipid Production of Chlorella vulgaris
Effect of Algal Preferences on the Distribution of Littorina littoralis
The Use of Algae as Indicators of Environmental Variables in Streams
Oxygen Depletion Effect on Chlorophyta Population
Factors Affecting the Growth of Blue Green Algae in Freshwater Lakes
Effects of Gibberellic Acid on Chlorella vulgaris Population Density
Analysis of Bactericidal Properties in Marine Algae
Localization of Acid Phosphatase in Volvox
Effect of Changes in the Chemical Composition of Lakes: An Algal Assay
Ion Requirements for Motility of the Green Alga Chlamydomonas reinhardtii
Phytoplankton Production in Small Lakes and Ponds: Importance of Algae Size
Photoperiodicity of Conjugation in Agar Treated Spirogyra
Chemotactic reactions of the Volvox aureus to Various Neurotransmitters and Their Effects on Its Flagellar Coordination
Field Observations of Algae Attached on an Artificial Substrate
Environmental Stress Changes on Chlamydomonas
Effects of Salt Levels of the Nutrient Medium on the Growth Rate of Chlorella pyrenoidosa
Effects of Gibberellic Acid on the Formation of pyrimidines in Algae
Abberrant Phototactic Response in Chlamydomonas
Genetic and Physiological Control of Behavior in Chlamydomonas reinhardi
Effect of Phosphate and No-Phosphate Detergents on the Growth Rate of Oscillatoria tenuis in vitro
Effects of Varied Carbon Sources on the Growth Rate and Protein Content of Cyanidium caldarium Algae
Active Transport of the Calcium Ion in Chlorella pyrenoidosa
Effect of Wavelengths of Light on Spirogyra
Effect of Simultaneous Mutagenesis of Both Sexes of Chlamydomonas reinhardi on the Transmission of Cytoplasmic Genes
Biological Effects of Pollutants on Algae Cells
Antibiosis Study of Fresh Water and Marine Algae
Investigation of Pigmentation and Antibiotic Properties of Multicellular Marine Algae in Corpus Christi Bay Area
Sulfur Requirements of Chlorella
Effect of Ultraviolet Radiation on the Antibiotic Property of Chlorella
Ultraviolet-Chlorella Interaction as a Bacterial Radiation Shield
Effects of Growth Control Compounds on Algae
Effects of Gibberellic Acid on Algae
A Comparison of Algal growth in Two Lakes
Spirogyra and Cobalt Sixty
Antibacterial Characteristics of Fresh Water and Marine Algae
Do Algae Need Sleep?
The Study of the Dynamics of Algal (Chlorella) Growth
An Algal Succession in Del Puerto Creek
The Culture, Analysis and Uses of Spirogyra
A Comparison of the Thermal Algae, Chlorella and Synechococcus lividus

Lichens

A Comparative Ecological, Taxonomical and Chemical Study of the Lichen Flora in the Coastal Zone of the Island of Puerto Rico
Lichens: A Comparison of Chemical and Physical Characteristics of Lichen Species in Three Environments
Compatibility and Alteration of Lichen Symbiosis in the Presence of Benzylpenicillin
Lichens: Indicators of Air Quality
Lichens: A New Source of Antibiotics?
The Effect of Some Sulfur Compounds in the Lichens Parmelia caperata and Cladonia chlorophaea
Chemical Research on Lichens
Lichens: New Methods of Detecting Air Pollution by Analyzing the Physical and Chemical Characteristics of Individual Species
Lichens: Their Analysis, Structure and Uses
Algal Fixation of Nitrogen in Lichens
Comparison of the Lichen Vegetation From Oberdiessbach and Thun
Lichen Extracts for Bacterial Inhibition

Fungi

Optimum Environmental Conditions for Mold
Food Competition Among the Cellular Slime Molds
The Influence of Cadmium on Growth and Morphology of Three Species of Nematode-Trapping Fungi

Isolation of Nucleoli From the Slime Mold *Physarum polycephalum*
Fatty Acid Synthesis in Young Cultures of *Penicillium chrysogenum*
Effects of Gibberellic Acid on the Fruiting Bodies of the Slime Mold, *Physarum polycephalum*
Phototropic Dispersal of Spores by the Fungus *Pilobolus*
Fungicidal Studies on *Dibotryon morbosim in vitro* and *in vivo*
Effects of Humidity on the Discharge of Sporangia in the *Pilobolus* Fungus
Determination of the Organic Components of the Cell Walls of the Fungus *Trichoderma viride*
Effect of Ultraviolet Radiation Upon the Citric Acid Production in *Aspergillus niger*
Study of Potassium in the Acellular Slime Mold *Physarum polycephalum*
Investigation of the Catalytic Qualities of an Enzyme Extract From Mushrooms
Distribution of Myxomycetes on Bark of Living Trees in the Vicinity of Austin, Texas
Effects of Metabolites and Polyols on *Phycomyces* Mutants
Influence of the Pyramid Shape Upon the Germination Rate of *Aspergillus niger*
Microbiological, Phytopathological, Statistical and Chemical Study of Various Fungi Species Acting as Biological Control *in vitro* and *in vivo* for *Phytophthora infestans* in *Lycopercicon esculentum*
Mycelial Proteins in *Aspergillus niger*
Studies on the Nature of Tetrapolar Incompatibility Factor in *Pleurotus ostreatus* and *Pleurotus sajorcaju* Mushrooms
Toxin Production and Cultural and Morphological Changes in *Helminthosporium victoriae* Grown on Different Nitrogen Sources
The Absorption of Radioactive Iodine by Molds and Bacteria
Rate of Reversion in Irradiated Neurospora
Investigation of Atmospheric Fungi of Los Quinteros Cave, Corozal, Puerto Rico
Imperfecti Fungi-I-9: Food of the Future
Screening Mushrooms for Antibiotics
Ultrasonic Fungus Contro
Isolation of Molds
Nutrients and Mold Growth
Collection and Study of Molds
Effect of Fusarium on Terra Cotta Clay
The Effect of Irradiation on Black Shank Fungus
Response of the Plasmodial Slime Mold, *Physarum polycephalum* to Sensory Stimulation
Mycological Contributions to Corrosion
Testing of Anti-Viral Activity of Puffballs
Atmospheric Fungi in a Puerto Rican Locality
Effect of Light on Distribution of Spores in Fungi
Peroxidases: Metabolic Regulators of Fungi?
Alkaloid Studies of Selected Fungi
Vitamin Requirements of Fungi
Acetate Metabolism of the Fungus *Neurospora sitophila*: Effects of Fungicide TMTD on the Fungus
Structure of Fungi
Mycology
Indigenous Fungi of Cabell County
Microscopic Observations of Fungi
A Survey of Bark-Inhabiting Fungi
Nematode-Trapping Fungi
Lethal and Mutagenic Effects of Radiation on *Penicillium sp.*

PLANT ANATOMY

An Investigation of A, B and O(H) Lectins in Common Garden Seeds
Nature and Taxonomic Distribution of Foliar Trichomes in the Fagaceae
Identifying Plant Varieties by Leaf Epidermal Cell Patterns
Size as an Antipredatory Refuge of the Marsh Periwinkle *Littorina irrorata* (SAY)
An *in vitro* Culture Technique for Studying Adventitious Shoot Formation in Sweet Potato Roots
Influence of the Tonic Effect of Gravitation and Auxin on Cell Elongation in Roots
Cross Section of a Flower
Various Types of Seeds
How Can We Use Energy Produced by Swelling Seeds?
Analysis of Sagebrush
Research on the Pollen of *Lilium longiflorum*
Atmospheric Survey of Pollen in Tucson Sonora Desert Area
Experimenting With Leaves
Likeness of Leaf and a Factory
Plants: Anatomy, Morphology and Classification
The Wonders of Nature in a Monocot and Dicot Plant
Stem Strength of *Vicia faba* Plants
Study of Tall Bearded Iris
Do Roots Affect the Acidity of the Soil?
Role of Proline in Pollen Germination
Hemagglutinins From Seeds

PHYSICAL PLANT PHYSIOLOGY

Plant Cell and Tissues

Tissue Culture Propagation of Gloxinia
Isolation of Mesophyll Protoplasts and Tissue Culture of *Pennisetum americanum*
Enzymatic Protoplast Release as a Function of Time After Cell Transfers in Liquid Suspensions of Carrot Cells
Production of Viral Interferon in Plant Tissue
Plant Tissue Culture
The Tissue Culture of Lily Flower Organs and Its Application
Studies in Plant Tissue Respiratory Intensities
A Study of Nectar Secretion of a Snapdragon
Digestive Enzymes in Plants
Tomato Tissue Culture
Various Factors Affecting the Mitotic Peak of Onion Root Tip Cells
Ions and the Living Force of Plant Tissue
Effect of Gibberellic Acid on Cell Growth in Leaves

Growth

Effect of Electrical Stimulation on the Growth of the Mustard-Tendergreen
The Role of Gibberellins in Phytochrome-Mediated Lettuce Seed Germination
Electroculture as a Growth Stimulant
Adventures in Stem Rooting
Allelopathy: Can Seeds Inhibit Germination of Other Seeds?
Limax maximus Soil: Its Effect on Seed Germination and Plant Growth
Effects of Extracts of *Lantana camara* on the Germination of Seeds
The Activity of Lipoxygenase During the Germination Process of Legumes
Relative Seed Performance Characteristics in an MHD Generator
Effect of Sulfur Dioxide on the Growth of Plants
Effects of Altered Levels of Endogenous Growth Regulators on the Senescence Rate of the Bean Plant
Inhibition of Seed Germination Using Yarrow Leaf and Petiole Extract
Effects of Microwaves on the Germination and Growth of Selected Plant Seeds
Chickpea (*Circer arietinum*) Germination in Relation to Seed Coat and Seed Size
Germination Rate of Selected Monocots and Dicots as Induced by Gibberellin Concentrations
Unlocking the Key to the Seed Germination Phenomenon
Effect of Cytokinin on Multiple Shoot Formation in Roses
Long-Chain Alcohols as Plant Growth Regulators
Zinc: Plant Growth Stimulant
Effects of Predehiscence Harvesting on Orchid Seed Capsule Germination
Comparative Analysis of the Germination of *Sailcornia bigelovil*, *Avena satina* and *Glycine max* Seeds in Seawater
Effects of Time-Varying Electromagnetic Fields on Radish Seeds
Effects of a High Intensity Magnetic Field on Seed Germination
Effects of Infrared and Ultraviolet Light on Germination and Growth of Lettuce Plants
Early Growth in Baby Lima Plants (*Phaseolus limensis*) Relative to Light Exposure Immediately After Sprouting
Predicting Plant Growth Under Simulated Zero Gravity
Effects of Music on Plant Growth
Flower to Fruit
Will a Plant Grow Upside Down?
Plants Growing in a Sealed Jar
The Growth of Green Plants in Darkness
Growth of Plants in a Rarified Atmosphere
An Analysis of the Rapid Growth of Kudzu
A Root Growth Factor From Seedlings
Growth and Development of the Carrot and Radish
AMO-1618: A Plant Growth-Inhibiting Chemical
Gaseous Ions and Plant Growth
Growth Rate of Duckweed Dependent on Gaseous Environment
Effect of Light on Plant Growth
Effects of Far-Red Light on the Photoconversion of Phytochrome in Seed Germination
The Effect of Sterilization of Soil on Plants
Hardening Flowers
The Effect of Centripetal Force on Plant Growth
Auxins: Plant Growth Substances
Wind Versus Plant Growth
Effects of Auxins on Leaf Elongation of *Acer saccharum*
Vitamins: Their Effect on Root Growth
Chemical and Phototropic Effects on the Germination of Seeds
Red and Far-Red Light: Their Effect on Germination
Effects of Various Seeds on Pepper Seed Germination
Effect of Seed Coat on Germination Rate of Okra Seeds
Effects of pH on Seed Germination and Development
Gas Discharge and Seed Germination
Electro-Germination
Effects of Growing a Plant in an Electric Field
Does Magnetism Affect Plant Growth?
Effect of High Intensity Magnetic Fields on the Growth and Germination of *Trifolium repens*
Effect of Sound on the Growth of Plants
Effect of Audible Sound Waves on Early Plant Growth
Seed Germination
Little Beans and How They Grow
Influence of Lichen Extracts on Plant Structure and Growth
Effect of Anterior Pituitary Animal Endocrine on Plant Germination and Growth
Geraniums From Seeds

Chemical Agents Affecting Plants

Biochemical Changes in Plant Products Induced by Gibberellic Acid and Cycocel
Kinetin Retards Chlorophyll Degradation in Chinese Broccoli
Determination of Maximum Root Growth of *Lycopersicum esculentum* and *Pisum sativum* as Induced by Thiamine Hydrochloride and Pyridoxine Hydrochloride
Gibberellic Acid Induced Variances in the Soybean
Effects of High Concentrations of Chlorinated Hydrocarbon Insecticides on Growth Processes of Garden Peas and Sweet Corn
Kinetics of Rapid Bean Growth Induced by Indole-3-Acetic Acid, Brassin and Fusicoccin
Physiological and Visible Injury Caused by Challenging Doses of Copper Sulfate on Leaf Tissue
Effects of Simulated Acid Rain on *Glycine max* (L) Merrill
Inhibitions of Zea Mays Root Growth by a Toxin Produced by *Fusarium moniliforme*
Effects of Gibberellic Acid on the Flowering Process
Effect of Triacontanol on Tomato Plant Hormone Levels

Hormonal Regulation *in vitro* on *Asparagus densifloris* and *Nicotiana tabacum*
Measurement and Modification of Salt Tolerance in *Avena sativa*, *Zea mays* and *Phaseolus vulgaris*
Determination of the Optimal Time of Gibberellic Acid-Cycocel Application Which Induces the Greatest Carrot Yield in a Given Period
Effects of SO_2 on Marsh Grapefruit Trees
Role of Oxalic Acid in Bean Plant Destruction
Effect of Porphyrin Synthesis Inducing Drugs on Root Growth in Cucumber Seedlings
Evidence for Light Induced CA^{++} Flux in Etiolated Corn Coleoptiles
Effects of Antibiotics on Mitosis in the Allum Root Tip
Interaction of Atmospheric NO_2 and *Pisum sativa*, *Triticum sativum* and *Hordeum vulgare*
Effects of Sodium Nitrite on the Chromosome Structure of *Hordeum vulgare* and Growth of *Raphanus sativus*
Effects of Simultaneous Treatment With Different Ratios of the Promoter Hormones on *Lactuca sativa* Hypocotyl Length and Leaf Area
Allelopathy: Chemical Warfare in Plants?
Limax Maximus Mucus: Its Effect on Plant Growth and Root Development
Effect of Herbicides and Pesticides on *Rhizobium leguminosarum*
Organic and Chemical Amelioration of Copper Toxicity
Toxic Substance Uptake: Absorption, Transportation and Storage of Lead in Plants
Transfer of Carotene Excitation Energy to Alpha Chlorophyll in Petroleum Ether
Effect of Chitin Synthase Inhibiting Insecticides on the Germination of Apple Pollen
The Effect of pH on Leaf Ratio in the Radish
Effects of Some Synthetic Detergents on Plants
Effect of Ozone on Growth Factor of Philodendron
Effects of Ethylene on Plant Seedlings
Effect of Carbonic Acid Gas on Mature Plants
What Do Plants Obtain From Soil?
The Effect of Fertilizer on Plant Growth
Effects of Industrial Wastes on Plant Life
Use of Seed Extract and AIBN, a Free Radical Initiator, in Determining Plant Radiosensitivity
Effects of Sodium Fluoride on Plants
Effects of Colchicine on Ploidy in *Polystichum acrostichoides*
Effects of Certain Chemicals on the Rooting of Kelsey Yew and Japenese Holly Cuttings
Preparation of Gibberellic Acid Compounds

Physical Agents Affecting Plants

Effect of Zero Gravity and Extra Gravity on Plants
A Comparison of Effects of Two Ionizing Radiations on Plants
Plant Growth and Hormone Distribution as Influenced by Centripetal Force
Effect of Light on Root Development
Effect of Irradiation on the Production of Latex in the Plant *Euphorbia lathris*
Phototaxis in *Cypris* and Its Modification by Gravitational and Galvanic Responses
Effect of Ultraviolet Light on the Oxygen Consumption of *Vigna sinesis* Leaf Tissue
Photoperiodism, Phytochrome and Red Light
Structural Adaptations of the Wavy-Leaved Thistle for Thermal Symbiosis
Effects of Different Light Wavelengths on Plant Biochemistry
Relative Response to Mechanical Stress of Greenhouse Plants vs. Outdoor Plants
Simulating Zero-Gravity Plant Growth
Previsual Detection of Stress in Plants
Using Electricity to Control the Direction of Root Growth in Space
Effects of Varying Wavelengths of Light on the Transmittance Distance Within the Stem
Effect of a Rotating Magnetic Field on Enzyme Activity in *Hordeum vulgare*
Effects of Darkness and Streptomycin on the Fine Structure on *Euglena gracilis*
Role of Chloroplast Proteins in the Structural Adaptation of Plants in Varying Light Intensity
Effects of Radiation on *Zea mays* as Counteracted by Microbial Products
Spectral Changes in Chlorophyll Following Flash Illumination
Record of Airborne Radiation in the Annual Growth Rings of an Apple Tree
Plant Electrification
How does Electricity Affect the Sensitive Plant *Mimosa pudica*?
Effects of an A.C. high Voltage Electrostatic Field on Plant Growth
Study of the Morphological Effects of X-Rays on Plants
Role of Monochromatic Light on Plants and Animals
Effects of Varying Light Intensities on CO_2 Fixation in Plants
Effects of High Altitude and Sap-Flow on Plants in a Frigid Environment
Effect of Colored Light on Leaf Sugars
Effects of Neutron and Gamma Radiation on the Photoperiodic Responses of the *Raphanus sativus* Radish Plant
Magnetic Field Influence on *Fusarium sp.*
Effect of High Frequency on Plant Functions

Periodicity. Dormancy. Photoperiodism

Seasonal Changes of the Leaves of *Acer saccharum*
Exploring Into Photoperiodism
Study of Induced Abnormal Rhythms in the Leaves of Bean Plants
Periodicty in the Onion Root

Movements. Irritability in Plants

Effects of Specific Hormones Upon Geotropic Movements in *Phaseolus*
A Method to Stimulate Geotropism in a Micro-Gravity Environment
Osmosis as a Factor in Phototropism
Effect of Electricity on the Various Tropisms of Angiosperms

Rotating Plant Growth Chamber: Method to Artificially Cause a Geotropic Response in a Weightless Environment
Role of Calcium in Linking Gravity Detection to Gravitropic Curvature of Roots
Effect of Carboxylic Acid on Phototropism
Studies on the Mechanisms of Movement in *Mimosa pudica* L.
Role of Calcium in Geotropism
Plant Tropisms
Conditioning of the Sensitive Plant, *Mimosa pudica*
Effects of Centrifuging on the Geotropic Responses of Red Bean Plants
How Do Auxins Affect Geotropism
Phototropism in the Pilobolus
Phototropism With Color
Rhythmic Functions of Avena in Its Phototropic Response
Phototropic Response of Coleus Plant to Varying Amounts of Injected Indolylbutyric Acid

Reproduction

In vitro Induction of Asexual Embryogenesis in Pear
Methods for Initiating a Premature Flowering and Fruiting Response in *Phaseolus vulgaris*
How Plants Reproduce
Artificially Induced Plant Parthenocarpy
A Plant Can Grow From a Leaf
Comparative Study of Vegetative Propagation of House Plants
Grafting of Plants
Fertilization of Flowers
Tree Grafting

PHYTOCHEMISTRY

Chemical Composition of Plant Body

Protein and RNA Synthesis During the *in vitro* Tube Growth of *Vinca rosea* Pollen
Identification of Plant Immunity Mechanism
The Allelopathic Aspects of *Melilotus alba* Through Coumarin
Extraction of Lectins From Various Legumes
Carbohydrate Analysis of Phytochrome From *Avena sativa*
Exploring the Nitrogen-Potassium Relationship in Corn
Wax Location in the Vegetative Organs of Jojoba
Isolation of Submitochondrial Particles From Bean Plants and a Chracterization of Their ATPase Activity
Isolation, Purification and Carbohydrate Analysis of Vicilin From *Phaseolus vulgaris*
Quantitative Extraction and Identification of Potassium Compounds From Banana Stalks
Polysaccharide Biosynthesis in the Cotton Epidermal Primary Cell Wall
Resistance of Roots to Ion Penetration and Flow
Role of Anthocyanin Pigments in the Resistance of Maize to Infection
Peroxidases in Induced Bean Plant Tumors
Development of Starch Granules in Wheat
Cornstalk Cellulose
The Plant as a Starch Factory
What's Inside a Corn Stalk
Exchange of Ions Between Resins and Radish Root Tips

Plant-Water Relationships

Select Stomatal Complex Features in the Fagaceae
Relationship Between Water Evaporation and Mineral Salt Content of Radish Leaves
Interaction of Ions in Relation to Metabolism During K^+ Uptake for Stomatal Movement in *B. diagremontianum* and *V. faba*
The Behavior of Stomates in Green Plants
Polarity and the Movement of Indole-3-Acetic Acid in the Root Tissue of Daucus Carota
To Show That a Plant Gives Water to the Air
Translocation of P32 in Plants
Translocation of Dicamba in Herbaceous Plants
Osmosis: The Pump of Life
Determination of the Osmotic Concentration of the Epidermal Leaf Cells of Carnation: Plasmolytic Method
A Study of Stomates
Transpiration in Plants

Metabolism

Study of Photosynthetic Luminescence
Processes of Photosynthesis Involving the Use of Radioisotopes to Identify Intermediate Compounds
Photosynthesis and Carbon Reduction in a Chloroplast Free System
Effect of Infection With TMV on the Photosynthetic Rates of *N. tabacum*
The Role in Photosynthesis of the Carotenoids
Effect of Salinity, Temperature and pH on the Photosynthesis of *Enteromorpha intestinalis* and *Chondrus crispus*
Weak Magnetic Field Effect on Photosynthetic Activity in *Euglena gracilis*
Utilizing Artificial Photosynthetic Bilayer Membranes to Study Photosynthesis
Absorption of Light Energy in *M. sativa* and *A. saccharinum* and Their Relationships to Photosynthesis
The Action Spectrum of *Elodea* Photosynthesis
Differential Anthocyanin Synthesis in Geranium Leaves
Diversification in the Metabolic Rates of Plants When Subjected to Sound Waves
Nutrient Absorption Mechanism in Plant Roots
Radioactive Zinc and Zinc-Chelates in the Hormone Metabolism of Plant Tissue Culture
Growth and Metabolism of Algae During Substitution of Rubidium for Potassium
Nutrient Passage Through Plant Grafts as Tested With Radioisotopes
Radioative Isotopes as Tracers in Plants
Nutritious Air
Nutrients and Stimulants
Plant Responses to Unipolar Air
Plant Element Deficiencies
Studies on Potato Respiration

Carbon 14 in Photosynthesis
Effects of DDT and DDE on Photosynthesis in Chlorella
Man's Most Important Chemical Factory
Our Remarkable Source of Life - Light
Visible Light and Photosynthesis
Effects of Oxidative Phosphorylatin and Photosynthesis on Sap Rise
Comparative Wave-Length Effects on Photosynthesis
Catalysts in Photosynthesis
Determining the Rate of Photosynthesis
Effect of Various Bands of the Spectrum on Photosynthesis in Vallisneria
Photosynthetic Phosphorylation in Isolated Chloroplasts
Photosynthetic Metabolism in *Rhodopseudomonas palustris*
Albino Maize in Photosynthetic Experimentation
Effects of Ethylene on Plant Photosynthesis and Respiration

Special Plant Constituents

Thin Layer Chromatographic Separation of Leaf Alkaloids of *Vinca major*
Kinetic Analysis of Ascorbic Acid Oxidation
Effect of Kinetin in Relation to Membrane Permeability of Substrates at the Site of Anthocyanin Biosynthesis in *Brassica oleracea*
Differential Anthocyanin Synthesis in Geranium Leaves
Chemical Properties of *Nasunin*
Antibacterial Effect of Some Tropical Plant Extracts With Special Attention to *Punica granatum*
Extraction, Separation and Purification of Anthocyanin Pigments for Use as a Natural Food Colorant
Report and Study of New Antimicrobial Natural Products Found in the Fruits of *Solanum Mammosum*
Study of the Narcotic Properties of *Canella winterana* and Their Effect on Different Aquatic Organisms
Vitamin A and Vitamin C Content Comparison in Wild Herbs to Cultivate Plants Using Spectrophotometry
Inhibitory Substances in Bean Seeds
Pharmacognosy of Solandine From *Solanum dulcamara*
Identification of the Species of Leucyl-tRNA Present in the Chlorplasts of Pea Leaves
Feasibility of Flavonoids in Differentiaiting Species of *Prosopis*
Static Production of Antiseptics in Pteropsids and Their Effect on Air-Borne Microorganisms
Interactions of Plant Hormones and Physical Stress; Interactions of Plant Hormones and Gluthathione
A Study of Vitamin B_{12} Factor in Eutrophication
Interaction of Chromium and Iron in Plant Uptake
Isolation and Identification of the Plant Pigments in *Gossypium tomentosum*
Origins and Developments of the Light Absorbing Pigments of Photosynthesis
Chemical Analysis of Cotton for Terpenes and Tannins
Effect of Varying Wavelengths of Light on the Separation of Leaf Pigments by Paper Chromatography
Concentrations of Metal Ions in Plants Grown in Digested Sludge
Quantitative Analysis of the Carotene in Hydroponically Grown Tropical Tomatoes
The Function of Various Components of *C. sativa* Extract as Potential Insect Detterents
A Comparative Study of Chlorophyll Retention in Bean and Radish Leaves
Characterization of the Pesticidal Substance in *Maclura pomifera*
Separation of Anthocyanids Using Thin-Layer Chromatography
Antibacterial Analysis of Plant Extracts Using Various Extraction Procedures
Hormonal Regulation of Chlorophyll Level in Senescent Plants
How to Obtain Hydrocarbons out of Tropical Plants
Anti-Microbial Natural Products From the Black Nightshade (Solanaceae)
Purification and Kinetic Studies of Enzyme Uricase Extracted From Root Nodules of Soybeans
Isolation and Elucidation of the Leaf Flavonoids of *Hofmiesteria fasciculata*
Allium sativum Extracts as an Antimycotic in the Treatment of *Candida albicans* Cutaneous Mycotic Infections
Activity of the Lipozygenase Enzyme in Legume Plants
Exploring the Nitrogen-Potash Relationship in Corn
Pigeonpea Leaf Toxicity and Its Role in Plant Suppression
Extraction and Isolation of Repellent Substances From Plant Sources
Effects of Various Light Intensities on Chlorphyll Production in *Potamogeton perforliatus*
Photovoltaic Reactions Between Spinach Pigments, 1,4-Benzoquinone and 1,4-Hydroquinone
Allelopathic Effects of *Setaria lutescents* on Sorghum
Sulfated Flavonoids: Their Ecology and Systematics
Streptomycin's Inhibitory Effect on Chlorophyll Formation
The Relationship Between Chlorophyll and Heme Effect of Varied Wavelengths of Sunlight on Concentration of Chlorophyll A in Grass Blades
Analysis of Pea Juice by Chromatography
Chromatography and Leaf Pigments
Chromatographic Pigment Patterns for Leaf Species of the Genus Acer
Study of Red Radish Pigment
Autumn Colors
Anti-Freeze in Prickly Pear Cactus
Isomerization of Carotenoid Compounds
Extraction and Identification of Amino Acids From Chrysanthemum Flowers
Study of Hormones in Skunk Cabbage

Chlorphyll and Carotenoids
Separation of Chlorophyll Pigments
Qualitative Analysis Between Chlorophyll A and B
Chlorophyll as a Catalyst in Endothermic Reduction Reactions
Spectrographic Analysis of Electron Excitation in Chlorphyll A
Research on Vitamin C Content of Garden Cress
Determining the Location of Gibberellin-Like Hormones in Higher Plants and Their Effect on Growth of Bean and Cucumber Plants
Factors Affecting The Production of Betacyanin Pigments in the Common Beet
Measuring Pigment Formation in the Geranium Leaf

PLANT ECOLOGY

Vegetative Interrelation. Phytosociology

The Venus Flytrap - A Study of Trap Closure
Effect of Varying the pH on the Activity of the Foliar Enzyme Secretions of the Sarracenia flava
A Hidden Link in Plant Nutrition and Forest Ecosystems
Biochemical and Biophysical Properties of Venus' Flytraps
The Venus Flytrap in Relation to Its Metabolic Activities and Possible Economic Therapeutic Values
Utilization of Animal Protein by Insectivorous Plants
A Carnivorous Plant
Digestive Processes in the Venus Flytrap
Ecological Relations in the Goldenrod Ball Gall
Ecological Study of the New Jersey Pine Barrens
Use of Algae in an Ecological Loop
Plant Ecology of Harsh Environments
Ecology and Distribution of Plant Life in the La Grange, California, Area
Fungal Ecology of Tularosa Basin
Study of Desert Flora
Some Things You May Have Missed About Mistletoe
Freshwater Algae as Producers in a Food Web
Effects of a Subaqueous Environment on Commelinaceae Such as Tradescantia
Ecology of Dune Plants on the Enshunada Coast in Shizuoka-ken, Japan

Physiographic Regions

Phytoplankton Growth Rates as Determined by Various Prepared Media
Phytoplankton Production in Small Lakes and Ponds: The Importance of Algal Size
Temperature and Plankton Populations in Eutrophic Waters
Phytoplankton Periodicity in a Small Oligotrophic Pond
Collection and Identification of Plankton
Net Plankton Studies in Corpus Christi Bay
Diurnal Migration in Plankton Animals
Identification of Palmitate Esterase Enzyme Hydrolized in Phyto- and Zooplankton

Reproductive Interrelation

Investigation Into the Mechanism Controlling Germination of Pollen
Systematic Evaluations Regarding Vectors of Pollination for Strelitzia regomae
Ecology of Pollen and Mold Surveys
Seed Dispersal

Evolution of Plants

Hybridization of Portulaca grandiflora Involving One Characteristic
Evolutionary Trends in Water-Conducting Cells of Woody Plants
Ethnobotany of Corn

ZOOLOGY — QL

Divisions of the Animal Kingdom
Use of Proteins in the Classification of Animals
Comparative Serology in Zoological Taxonomy
Contributions to Speleo-Zoology

COLLECTING AND PRESERVATION

A Collection of Insects
Collecting and Culturing Invertebrates
Plastic Imbedding of Specimens
Vinylite Corrosive Specimens
How to Keep the Bones
Preservation of Caterpillars by Inflation
Problems of the Salt Water Aquarium

INVERTEBRATES

Evolution in the Invertebrate Communities
Structural Differences of Invertebrates

Protozoa

Effect of Colchicine on the Amount of Chlorophyll Synthesized in Euglena gracilis
Analytical Research of Phototaxis Among Euglena gracilis Under the Visible Light Field of the Eletromagnetic Spectrum
Mechanics of Photokinesis in Euglena gracilis
Bleaching of Euglena gracilis Chloroplasts by Streptomycin
Application and Effects of Low Temperature on Amoeba proteus in Relation to Pinocytosis
Effect of Photoperiodism on Paramecia Reproduction
Effects of Monosodium Glutamate on the Physiology of Paramecia
Effect of Cigarette Smoke Residue on Paramecium multimicronucleatum
Determination of the Active Contractile Site in Amoebae
Effects of Electromagnetic Radiations of Various Wavelengths Upon Entrainment of Paramecium Multimicronucleatum Into a Ciradian Mitotic Rhythm
Effects of Ultraviolet Light on the Symbiotic Relationship of Paramecium bursaria and Zoochlorella
Effect of Various Salt Solutions on the Cell Membrane Potential of Paramecium caudatum

Effects of the Steroid Prednisone on the Physiology and Morphology of Paramecium caudatum and Paramecium bursaria
Possible Control Mechanisms of Secretion and Deciliation in Paramecium
Effects of Lithium Chloride on Paramecium caudatum
Trace Elements as Growth Factors in a Fully Synthetic Medium for Crypthecodinium cohnii-like Dinoflagellates
Effects of Lanthanum on Mechanically and Electrically Stimulated Contractile Response and Habituation in Spirostomum ambiguum
Effect of Ketones on the Homeostatic Mechanisms of Paramecium aurelia
Effects of Calcium on the Avoidance Reaction of Paramecium aurelia
A Determination of the Role of Chlorophyll in phototaxis of Euglena gracilis
Effects of Sulfur Dioxide on the Process of Photosynthesis in Euglena gracilis
Vitamin E and Its Effects on Protozoa
Agonistic Behavior of Certain Protozoa
Biological Rhythm of Cell Fusion in the Colorless Saprophytic Dinoflagellate Crypthecodinium cohnii
The Amoeba's Nucleus: Its Control Over Amoeboid Movement
Observations of Characteristic Cancerous Traits in Radiated Protozoa
Cloning Electrical Polarity Preference in Paramecia
pH and Acid Precipitation at the Protozoan Level
Effect of Verapamil Hydrochloride Upon the Ciliary Action of Protozoa
Nutritional Requirements and First Laboratory Culture of Two Species of Larger Foraminifera Amphisorus hempruchii and Amphitegina lessonii
Quantitative Analysis of Certain Taxes in Paramecium caudatum
Protozoa and Habitat
A Radiological Study of Protozoa
Amoeba-to-Flagellate Transformation in Naegleria gruberi
Effects of the Lithium and the Thiocyanate Ion on Protozoa
Protozoans and Space Travel
Euglena: Plant or Animal?
Orientation of Euglena
Growth Study of Euglena Using Spectrophotometer
Laminarase of Euglena gracilis
Culturing Paramecia
Affecting the Paramecium Way of Life
Comparison of Amino Acids in Paramecium aurelia and Paramecium bursaria
Some Effects of Gibberellic Acid on Plants, With Particular Emphasis on Euglena gracilis
Phylogenic Relationships in Paramecia Using Chromatographic Techniques
Fresh Water Protozoa and Their Environment
Nature of Nervous Impulse and Response in Paramecia aurelia
Effects of Microwaves on Paramecia and Amoeba
Effect of Radioactivity on Euglena gracilis and Paramecium caudatum
Light Production by Euglena
Electrical Potential and Responses in Ciliates
Analysis of Kappa-Pi Systems of Paramecium aurelia
Effect of Tobacco on Paramecium
Response of Euglena gracilis to a Magnetic Field
Nature of Radio Frequency Electromagnetic Field Effects on Euglena gracilis

Porifera

Anti-Microbial Properties of Six South Floridian Marine Sponges
Ecological and Biochemical Aspects of Marine Sponges From the Littoral Zone of Southwestern Puerto Rico
Dissociation, Sorting and Staining of Marine Sponge Cells
Chemotaxonomic Study of Aplysina and Smenospongia Sponges

Coelenterata

Effect of Mercenaria Extracts on Budding of Hydra littoralis
Toxins in the Portuguese Man-of-War
Activation of the Feeding Response of Hydra littoralis Through the Use of Cyclic AMP
Classical Conditioning in Hydra fusca
Effects of Adrenalin/Noradrenalin on the Behavioral Responses of Hydra
Ecological, Biochemical and Toxicological Study of Stony Corals of Southwestern Puerto Rico With Reference to New Records
Anemones: Response Elicited by Oxygen Deficiencies
Effects of Sodium Hypochlorite and Ammonium Hydroxide on Fresh Water Hydra
Antibacterial Properties of a Soft Coral
Effect of Varying Concentrations of KC1 and NaC1 on the Regeneration of Hydra littoralis
Budding in Hydra Viridis
Negative Feedback Regulation of Hydra Stem Cell Populations
Selectivity of Prey in Hydra
Hydroid Coelenterate Glutathione Response
Regeneration in Hydra
The Immortal Hydra
Hydras and Biochemistry
Effect of Radiation on the Growth Rate of Hydra
Effect of Polychromatic Red Radiation on the Sucrose Metabolic System in Sea Anemones
Growth of Chlorohydra viridissima Versus Hydra littoralis Using Original Food Limitation Techniques

Echinodermata

Determination of Collagen in the Skeletal Matrix of Embryonic Sea Urchins
Effects of Holothane on Ca-fluxes and Early Development of Sea Urchin Eggs
Symbiotic Relationship Between Lissocarcinus orbicularis and its Host, Holothuria aira

The Capability of the Fertilization Membrane to Prevent Bacterial Infiltration of Fertilized Eggs at Various Times Post-Insemination in the Sea Urchin, Lytechinus variegatus
Sensitization and Histamine Release by Cells of the Sand Dollar
A Chemical Conquers Starfish
Evolution of Crinoids

Worms and Other Vermiform Invertebrates

Utilization of Conditioned Planarian Worms in Determining Memory Transfer Ability of Dugesia trigrina
Effect of Acetylcholine Chloride and Atropine on the Electrocardiology of Lumbricus and Its Relation to Mammalian Smooth Muscle
Factors Stimulating the Vertical Migration of Marine Nematodes in Beach Sediment in Correlation With Tides
Regeneration of Transected Axons in Lumbricus terrestris
Acetylcholine Receptor in Earthworm
Preferential Digestive Capabilities of Platyhelminthes
Amino Acid Content of Trained and Untrained Planaria
Effect of Thyroxine and Related Compounds on Eye Regeneration in Planarians
Effects of Colchine Upon Planaria Regeneration
Effects of Ascorbic Acid on Planarian Regeneration
An Examination of Molecular Mimicry in the Pinworm Thelastoma bulhoesi
Response of Nereis virens and Nepthys incisa to Osmotic Stress
Earthworms: Can They Remember?
Growth and Regenerate Characterization of Planarians Under Induced Magnetic Fields
Repellence in the Lumbricus terrestris
The Effect of Selected Vitamins and Minerals on the Regeneration Rate of Lumbricus terrestis
Alarm Pheromone in the Earthworm Lumbricus terestris
Memory Transfer and Retention in Planaria
Effects of Monosodium Glutamate on the Rate of Refeneration and Short Term Memory Retention in Planaria
Inhibition of Juvenile Hormone Synthesis in the Tobacco Hornworm by Compactin
Comparison of the Incorporation of Histidine and B-Alanine With Respect to the Protein and Regeneration Gradients of Dugesia tigrina
Calcium and Cell Lysis of Trypanosomatid Parasites in vitro
Effect of Prostaglandins and Their precursor on negative Phototropic Movement in Planaria
Effects of Vitamin E, Vitamin B_{12}, Sodium Thiocyanate, Pectin and Lecithin on Regeneration of Planaria
Amino Acid Content and Regenerative Properties of Planaria Dugesia dorotocephala
The Role of Hydrogen and Calcium Ions in Planaria Regeneration
Effects of Thiourea and Thyroid on Normal Regeneration in Planaria
Hyperbaric-Oxygenation on the Regeneration of Planaria
Study of Earthworms
Negative Phototropisms in the Earthworm
Abnormal Growth in the Earthworm
Rythmic Mitosis in Planaria
Effect of Colchicine on the Physiology of the Planarium Dugesia dorotocephala
Neoblastular Migration as Being the Cause for Blastemal Growth and Full Regeneration in Dugesia tigrana
Effect of Shock Intensity and Number of CS-UCS Pairing in Conditioning Planaria
The Learning of Planaria
Study of Intestinal Helminths of the White-throat Woodrat
Intestinal Parasites of Frogs of South-Central Arkansas
Parasites of the Passalid Beetle
Life Cycle of Three Parasitic Worms
Myxosporidian Parasite of the Pinfish
Parasitology, including the Study of the Bile Duct Cestode, Hymenolepis microstoma
Effects of X-Rays on Planaria
Effects of Radiation on Neoblasts in Dugesia tigrana
Effect of Temperature on the Circulation of an Earthworm
Attempt to Determine the Compound or Compounds That Elicit the Feeding Reaction in Dugesia dorotocephala
An Experiment in Grafting Planarian Body Parts

Brachiopoda

Statistical Analysis of Length to Width Ratios of Brachipods

Mollusca

Polarized Light and Snails
What is the Pulling Capability of the Snail, Helix aspera?
Estimation of the level of Free ADP in the Slug Limax maximus Using ^{31}P Nuclear Magnetic-Resonance (NMR)
Shared Antigens Between Trematodes and Their Intermediate Snails Host
Sugar and Blood Group Specificity of a Lectin Found in the Albumin Gland of Helix aspersa (Common Garden Snail)
Preferences of the Pulmonate Gastropod, Arion ater, for Six Common Plants
Zonational Differences Between Two Species of Littorinidae
Pulmonate Gastropods and Their Reaction to Osmotic Solutions
A Biochemical Study of the Limpets of Rocky Coasts of Puerto Rico
Tracer Technique in Determining Sodium Influx in Ampullaria cuprina
An Ecological Study of Bulimulus guadalupensis in Puerto Rico
Equiangular Spiral Growth Patterns in Fossil and Recent Foraminiferan and Molluscan Life Forms
Study of the Presence of Heavy Metals and Pathogenic Bacteria in Crassostrea rhyzophorae
Effects of Cupric Chloride on the Pumping Rate of Bivalve Mollusks as Indicated by the Clearance of Neutral Red

Effects of Salinity on Bay Scallops
Effects of Pollution on the Size of Mussels
Pollution: The Effect of Copper on Oysters
Life History and Behavioral Study of Octopus bimaculoides
Ecological, Morphological, Biochemical and Ethological Comparative Study of the Mollusk: Littorina ziczac's Patterns
Energy Budgets for Three Different Size Classes of Blue Mussels, Mytilus edullis L.
Lead Uptake in the Hard Clam Mercenaria mercenaria
Morphogenetic Analysis of the Mollusk Botula californiensis and Other Intertidal Species
Malacology of Postglacial Lake Deposits
Shells as a Hobby
Evolution of the Gastropod Shell
Factors Influencing the Orientation of Shells on a Beach
Relationship Between Mathematical Formulae and Marine Mollusk Shell Growth
Oxygen Consumption by the Freshwater Snail, Ampullaria
Unusual Land Snails in Maryland's Susquehanna Valley
The Slug

Arthropoda

Origin of Segmentation in the Arthropod Line of Evolution

Crustacea

Factors Involved in the Mechanisms Controlling Biorhythms and Metabolic Rates in the Sandcrab
Ionic Regulation in Brine Shrimp: Absence of Carbonic Anhydrase in Its Implication for Elecrolyte Regulatory Mechanisms
Relationship Between Low Levels of Acid pH and The Respiratory Rate of Crayfish
Effect of Light Variations on the Locomotor Activity of Pagurus longicarpus
Hormonal Control of Chromatophores in Crustaceans
Role of Amino Acids in the Mechanisms Controlling Activity in the Sandcrab, Ocypoda laevis (Dana)
Morphology of Crayfish Closer Muscles and its Implications for Excitation-Contraction Coupling
Territorial Behavior in Pagurus longicarpus
Effects of Thermal Pollution on Crayfish Respiration
Relationship of Sediment Composition to Gill Maintenance and Habitat Selection in Certain Marine Crustaceans
Effects of Limb-Hair Isolation on Regeneration and Molting of the Fiddler Crab
Biological Clock of the Green Crab, Carcinus maenas
Notes on the Symbiotic Relationship Between Acropora palmata and Domecia Acanthophora
The Influence of an Electric Current on Crayfish and Grasshopper
Functional Aspects of the Crayfish Biofeedback System Under Varying Abnormal Conditions
Testing the Visual Behavior Mechanism in Woodlice
Effects of Hidden Sodium on the Heartbeat of Daphnia
A Simulative Study of Cigarette Smoke Induced Spontaneous Abortion in Daphnia and Its Neuromuscular Origins of Causation
Effects of Varying Concentrations of Molindone hydrochloride on the Heartrate of Daphnia longispina
Heart Rate in Daphnia
Resolving a Practical Question Concerning Daphnia magna Toxicity Testing
Thyroxine and Propylthiouracil Induced Cardiac Alterations in Daphnia
Analysis of Total Lipids and Cholesterol Contents in the Blue Crab, Callinectes sapidus Rathbun
Gene Expression: Distribution of Satellite DNA Sequences in Fractioned Marine Crab Chromatin
Osmoregulation in the Crayfish orconectes immunis
Biological Clocks: A Study of the Color-Change Rhythm as Exhibited by the Uca pugnax (Fiddler Crab)
Gill-Spine Sensitivity to CO_2 in Limulus polyphemus
Effects of Sublethal Concentrations of Mercury on Biological Rythms in the Fiddler Crab
A Study to Determine the Existence of Lateral Preference in Gammarus faciatus
Determination of the Qualitative Polypeptide Content of Crustacean Hemocyanins
Effectiveness of Photosensory and Chemosensory Receptors in Locating Prey by Carcinus maenas
Crayfish Camouflage: Chromatophore Function in Procambarus clarkii
The Effect of Auditory Stress on the Chemotactic Reaction of Polymorphonuclear Leukocytes in Macca Fascicularis in vitro
Eye Structure and Feeding Habits of Caridean Shrimp
Spatial Orientation of Crayfish Using Plane Polarized Light
Endurance Training in Crabs
A Study of the Symbiotic Relationship Between the Shrimp Gnathophylloides minerii and the Echinoid Tripneustes esculentus
Oxygen Consumption as a Function of Salinity in Hermit Crabs
Blood Protein Level in Crayfish During the Intermolt Cycle
Study of Brine Shrimp
The Molt-Controlling Hormone of Crayfish
Color Perception of the Hermit Crab
Comparative Survey of the Salinity Tolerances of Seven Species of Shallow-Water Hermit Crabs of the Families Paguridae and Diogenidae
Effects of an Electromagnetic Field on Daphnia pulex
Pill Bugs: Capable Crustaceans
Prevention of Barnacle Fouling
Effects of Nuclear Radiation on the Mortality and Development of the Brine Shrimp, Artemia salina L.

Radiation and Biochemistry Studies of the Molt-Controlling Hormone in Crayfish

Myriapoda

Environmental Factors on the Rate and Movement of a Millipede

Arachnida

Comparative Study of General Spiders and Elasticity of Spider Silk
New Species of Mite in the Interior of the *Xilocopa brasilianorum*
Spider Web Structure vs. Behavior and Environment
Spider's Web: A Research Tool
Effects of Caffeine on the Ability of Spiders to Build Their Web
Latrodectus mactans: Its Behavior, Growth and Development
The Effects of Directly Administered Stimuli on Silk Structure and Web Pattern of *Achaearanea tepidariorum*
Spiders and Their Ways
Behavioral Study of Trantulas
Fluorescence in Scorpions
Heat Tolerance and Preference of the Striped Scorpion
How Does the Adhesiveness of Spider Silk Vary?
The Effects of Therapeutic Agents on Spiders' Web-Spinning Ability

Insects

Histological, Histochemical and Chromatographic Study of the Compound Eyes of Insects
Color Sensitivity of Insects in an Alfalfa Field
Preference of Insects to Colors and Types of Light
Occurrence and Origin of Chitinolytic Activity in the Intenstinal Tract of the Carnivorous Insect *Nigronia serricornis* (Sav)
The World of Insects
Insects on 160 Acres
Insects in My Life
North Dakota Insects
Entomological Principles
Insect Adaptation
Effect of Unipolar Air Ions on Insects
Detection of Polarized Light by Insects Which Have no Need of Navigation Devices
Aerodynamics of Insect Flight
Qualitative Chemical Fractionation of Insects

Ephemeroptera

Tracing Life Histories of Mayflies

Blattaria

Neuromuscular Responses of the Cockroach Under Exposure to Ethrane
Effects of Reserpine on Circadian Locomotor Activity in the American Cockroach
Immunological Response of Male Cockroaches to *Tetrahymena pyriformis*
Climbing Ability of Cockroaches
Uric Acid Degrading Anaerobic Bacteria in the Alimentary Canal of the Madagascan Cockroach
Separation of Amino Acids From the Cockroach
Did You Ever See a Cockroach Talking?
Body Fluids of the Common Cockroach

Orthoptera

Comparative Study of Cricket Communication in a Simulated and Natural Environment
Environmental Stress: Effects on Crickets
Effects of Humidity Factor on Body Color of the Grasshoper *Acrida lata*
The Effects of Sevin on the Metabolic Rate of the *Acheta domesticus*
Light and Crickets
The Resting Potential of Orthopteron Muscle Fibre
Reproduction of the *Mantis religiosa*

Trichoptera

Caddis Fly and Its Larva

Odonata

Development of the Dorsal Ocelli in Dragonfly Nymphs
Exhibition of Topo-Thigmo-Taxis, Photo-Taxis and Geo-Taxis During the Larval Migration of the Hessian Fly
Flight Mechanism of the Dragonfly
Mite Infestation on Odonata
The Damselfly Nymph
Effect of Certain Factors on Development of Dragonfly Eggs

Hemiptera

Effects of High Temperature and Variation in the Dose of High Temperatures on the Fertility of Milkweed Bugs

Homoptera

Plant Growth Promoting Factor of the Pea Aphid
Effects of Lower Temperatures on the Fecundity of the Aphid *Rhopalosiphum padi*
Symbiosis of *Tetramorium caespitum* With Aphids
Effects of Density and Temperature on Aphid Host Plant Interactions
A Study of Aphids
Light and Temperature Effects on the Aliencolae Phase of *Aphis fabae*

Diptera

Gamma Radiation Induced Population Changes in *Drosophila melanogaster*
Correlation Between Pteridines and Genetic Aberrations in the Rosy Cistron of *Drosophila melanogaster*
Comparative Mutagenicity of Potassium Sorbate and Sodium Nitrite in *Drosophila melanogaster*

External Control of Genus Gastrophilus While in Egg Stage
Effects of Monosodium Glutamate (MSG) on the Reproduction and Behavior of Drosophila melanogaster
Oviposition Behavior in the Caribbean Fruit Fly Anastrepha suspensa: Preference for Guava, Psidium guajava, Fruits at Different Stages of Ripeness
The Effects of Roentgen Rays on Musca domestica
Relationship Between Wing Damage and Flight Capability in the Housefly, Musca domestica
Comparative Population Distribution and Mosquito Control Study Along Scajaquada Creek
Genetics: Natural Populations of Drosophila melanogaster
Effects of Folic Acid on the Reproductive Rate of Drosophila melanogaster
Effects of Exhaust Fumes on the Drosophila Reproduction Cycle
Pteridines in the Eye Pigments of Drosophila
Effect of Aspartame on Geotropic Responses in Drosophila
Effects of Zinc Gluconate on the Maze-Learning Ability of Drosophila melanogaster
Environmental Temperature Variations as a Selective Agent for Drosophila melanogaster
Effect of Monosodium Glutamate on Drosophila melanogaster
Effect of Allium sativum on Drosophila melanogaster
Genetic Effects of Radiation on Drosophila melanogaster
Resetting the Biological Clock of a Drosophila melanogaster
Genetic Analysis of Twelve Lethal Mutants of Drosophila melanogaster: Search for a Dosage Compensation Mutant
Effects of Radiation on Sex in Drosophila melanogaster
Effect of Eye Color on the Fruit Fly's Response to Varying Wavelengths of Light
Synergism Between Gamma Rays and Concanavalin-A Applied to Wild Type Drosophila melanogaster Embryos
Physiology and Ecology of the Goldenrod Gall Fly, Eurosta solidaginis
Effect of Long Term Exposure to a High Gradient Magnetic Field on Drosophila melanogaster
Effects of Aging on the Geotactic Behavior of Drosophila melanogaster
Building a Resistance to Saccharin in Drosophila melanogaster
Behavior Modification of the phototaxic Response In Drosophila melanogaster Through Avoidance Conditioning
Chromosomal and Anatomic origins of Phototaxis in Drosophila melanogaster
Mechanism of Selected Resistance in Drosophila
Mechanism of Flight Control in Sarcophaga Species
Effect of Temperature Shock on the Production of Pteridines in Drosophila melanogaster and Detection by Paper Chromatography
Effects of Magnetic Fields on Drosophila melanogaster
Biological Reduction of Mosquito Reproduction
Effect of Juvenile Hormones on Mosquitoes
Phototactic Response in Drosophila melanogaster
The Castor Bean Plant and the House Fly
Effects of Varying Concentrations of Salt and of Different Ions on Oviposition in Aedes aegypti
Food Selection by Drosophila melanogaster
When Do Fruit Flies Consume the Greatest Amount of Oxygen?
Effects of Caffeine on Fruit Flies
Effects of Colchicine, Phenol and Formaldehyde Upon Drosophila melanogaster
Fractionation of the Fruit Fly Drosophila melanogaster
Virgin Birth in Drosophila polymorpha
Pteridine Content of Various Strains and Crosses of Drosophila melanogaster
Effects of Radiation on the Heterozygous Offspring of the Fruit Fly
Selection for Reduced Recovery of Yellow Forked and Yellow White Forked Attached-X Females in Drosophila melanogaster
Comparative Chromatographic Analysis of Radiological Effects on the Fruit Fly
Chromatographic Evaluation of Induced Radioactive Immunity in Drosophila
Chromatographic Analysis of the Differences in Amino Acids in Mutants of Drosophila melanogaster
Chemical Effects on Reproduction of Drosophila melanogaster
Effects of Some Strong Tranquilizers on the Life Cycle of the Fruit Fly
Effects of Radiation on the Sex Ratio of Drosophila melanogaster
Effects of Magnetism and Centrifugal Force on Drosophila
The Problem of Ion Transfer in Sugar Chemoreception in Drosophila

Isoptera

Controlled Symbiosis: The Key to Control of Subterranean Termites?

Lepidoptera

Scanning Electron Microscope Examination of the Scales of Lepidoptera
Study of the Wooly Bear Caterpillar and Its Directional Preference
Laboratory Investigations of Bacillus thuringiensis Berliner as a Biological Control Agent of the Gypsy Moth
Use of Natural Sex Pheromones as Population Detectors for the Sugarbeet Armyworm
Assaying for an Octopamine Sensitive Adenyl Cyclase System in the Tobacco Hornworms
Butterflies, Beetles, Bugs
Raising Butterflies
Development of the Butterfly
Lepidoptera of Fulton County, Ohio
Variation and Speciation of New England Butterflies

Mimicry and Protective Traits in Lepidoptera
Genetic Clines of Colorado Butterflies
Variations in Hyalophora cecropia
Moths Can Foil the Sonar of Bats
Sulphur Butterflies: A Study in Evolution

Hymenoptera

Trail-Laying in Ants
Trail Pheromones of Fire Ants: Different Molecules for Different Trails
Ant-Agnostic Pheromones
Effect of Pheromones on Ant Behavior
Antennal Sensilla Receptors Involved in Detecting the Trail Pheromone of the Imported Fire Ant
Fire Ant Eradication
The Horned Oak Gall Wasp
Occurence and Influence of Antibiotic Producing Microorganisms on Development and Survival of Honey and Leafcutter Bee
The Compound Insect Eye: Perception of Shape and Color Vision in Apis mellifera
Influence of Light and Olfactory Cues on the Host-Finding Ability of the Parasitic Wasp Ooencyrtus kuvanae
Effects of Quantity and pH on Forage Preference in Leaf-Cutting Ants
Antics of an Ant
The Fascinating World of the Ant
An Exploratory Study of the Social Behavior of Ants
Abnormal Stimulation of Ovulation of the Queen Bee
Theory of the Hornet Spook Light
Megachilidae or Leaf-Cutting Bees
Influence of Carbohydrates Upon Longevity of the Adult Wasp
Study of Mortality in the Mud-Dauber Wasp
Apis mellifera (Honeybee) Visual Perception of Polarized Light

Coleoptera

Comparative Behavioral Response of the Mountain Pine Beetle Dencroctonus ponderosae to Food Odor of its Host Trees
Synthetic Juvenile Hormone: Induction of Pheromone Production and Response of the Warehouse Beetle
Effect of an Anti-Juvenile Hormone in Ageratum houstonianum on Meal Worms
Beetles and Hearing
Oxygen Uptake as a Function of Temperature on a Coleoptera
Experiments With June Beetles
Sexual Responses of Coleoptera, Tenebrionidae-Interspecies and Intraspecies

CHORDATES. VERTEBRATES

Fishes

Effect of Visual Communication on the Establishment of Social Dominance Hierarchies in Three Species of Sunfish
Identification of Striped Bass Races by Analysis of the Circuli Spacing on the Scales
Isozymes and Other Proteins as Genetic Markers for Ictalurus Species
Olfactory Inhibitors in Drilling Fluid
The Effect of Specific $Pb(C_2H_3O_2)_2 \cdot 3H_2O$ on the Erythrocytes of Carassius auratus
Response of the African Electric Catfish to Chemical Cues
The Effects of Vibrational Waves on the Platy
Electrifying Effects of the Black Ghost Knife Fish
Sound Communication in the Jewel Cichlid, Hemichromis bimaculatus Gill
Effects of Heavy Metals on Five Liver Enzymes in the Killifish
Effects of Diguat on Hematology of the Yellow Perch
Karyotypes of a Population of Pumkinseed Sunfish From the Hudson River
Amino Acid and Carbohydrate Composition of the Toadfish Chorion
Study of Group Havit of Medaka (a Japanese Freshwater Fish)
Study of the Growth and Development of Salmonoids Through a Semiclosed System
Electrotaxis - Determining the Effects of Electricity in Fish
Comparison of Elasmobranch and Teleost Learning Ability
Biochemical Basis of Learning and Memory in Goldfish
Atlantic Myctophid Fishes
Study of Male Sex Homones to Increase the Percent of Male Tropical Fish
Age Analysis and Growth of the American Pollack, Pollachius virens
Fish and Their Reactions to Foods
Assimilation of Radioactive Isotopes in Fish
Determination of Body Densities and Swimming Capabilities of Scombrid Fish
A Mosquito-Destroying Fish
Life Cycle of the Salmon
The Effect of Sound Upon Fish
The Habits of the Swordfish
Study of Hypothermia in Fish
Are Fish Affected by Magnetism
Effect of Hormones on Guppies
A Comparative Study of Three Stream Fish Populations
Possible Relationships Between Ages of Female Guppies and Number of Young Produced

Reptiles and Amphibians

The Effects of Alterations in the Structure and Concentration of Iodothyronines on Tadpole Metamorphosis
An Ecological Study of Eleutherodactylus portoricensis and Eleutherodactylus coqui With Special Reference to Their Differentiation Along Behavioral and Physiological Lines
Growth of the Galapagos Tortoise
Efficiency of the Sodium Transport Mechanism of the Frog in Its Natural Environment
Vocalization of the Greenfrog: A Systematic Approach to Classification and Differentiation
Surface Changes in Individual Toad Bladder Epithelial Cells Treated With Antidiuretic Hormone

Foam-Nest Formation of the Green Frog Rhacophorus arboreus
Development of Amphibian Eggs Under Simulated Hypogravity Condition
Why do Snakes Molt? A Biochemical Approach
Reptilian Fauna of El Paso County, Texas
Poikilothermy: Effects of Temperature on the Snapping Turtle
Spatial Relationship of Retinal Oil Globules in the Green Sea Turtle and the Swamp Turtle
Effect of Thyroid on the Development of Amphibia
Possible Correlation Between the Sex Chromatin Body and Homogamety in Amphibians
Regeneration in Salamanders
The Control of Skin Color in Frogs
Survival in a Tadpole Population
Natural History of the Bullfrog, Rana catesbeiana
Emergence of the Chameleon Chemical
Herpetology: The Order Squamata
Miscellaneous Studies in Herpetology
Noteworthy Contributions to the Ophiology of Barton County, Kansas
Adder
A Study of Microfilaria in the Toad
Bufo marinus as a Vector of Schistosma mansoni
Amphibia: The Frog
The Frog's Heart
A Comparative Study of the Growth Rate of Tadpoles in Different Environments
The American Bullfrog
Rate of Melanin Turnover in Tadpoles

Birds

An Investigation of Solar Location on Seagull Navigation
A New Avian Sexing Technique Using Microscopic Feather Analysis
Bird Survival Rates and Ages
A Study of Factors Affecting Orientation, Navigation and Velocity of Columba livia domestica
Implication of Barn Owl Pole Box Placement in the Northern Wasatch Front Area
Egg Recognition in the Common Tern
Comparative Study of the Avifauna of Two Old-Field Ecosystems
Comparative Analysis of Bird Egg Shell Structure
A Study of Domestic and Wild Asian Galliformes
Vascular Supply to the Avian Bursa
Factors Affecting the Dynamics of American Robin Reproductive Success
Spontaneous and Induced Plumage Achromatosis in Domestic Pigeons
Study of Redwinged Blackbirds in Utah
Analysis of Sternum as a Method to Determine Species of Birds
Winter Bird and Breeding Bird Populations on 13.8 Acres in Iowa
Investigation of a Barn Owl's Roost
Analysis of Owl Pellets for Determining Owl Diet and Mammal Distribution
Ornithology and Its Techniques
Preparation of Birds for Study
Know Your Birds and Protect Them
Identification of Birds
Bird Banding
For the Birds: A Study of Small West Virginia Birds
The Cardinal
Life History of the Mountain Bluebird
Visual Perception in the Pigeon
Effects of Over-Cultivation on the Diet of Quail
Relative Weight and Wing Area as Affected by the Flight Characteristics of Birds
Calcium Distribution in Correlation to Molting Cycle of Orconectes virilus

Mammals

Evolution

Evolution of the Horse

Carnivora

Trypsin-Giemsa Banding of Canine Chromosomes
Behavior of the Canadian Lynx at the Minnesota Zoological Garden
Color Perception in the Canine

Chiroptera

Acoustic Physiology of the Tragus of the Little Brown Bat
Periodicity Account of the New Species Litomosa winsatti Microfilaria in the Bat Molossus ater

Edentata

Study of the Bronchial System of the Two-Toed Sloth

Lagomorpha

Neurotoxic Effects of Aluminum in Rabbits
Identification and Distribution of Cyclic AMP Binding Proteins in Rabbit Heart
Separation of A Allotypes in Rabbit Globulin
Investigation of the Interference Phenomenon in Rabbit Test Systems

Primates

The Effect of Auditory Stress on the Chemotactic Reaction of Poly Morphonuclear Leukocytes in Macaca fascicularis in vitro
Determining Optimal Kinship Indicators in Rhesus Macaques
Status Determinants Among Vervet Monkeys (Cercopithecus aethiops)

Rodentia

The Effects of Diet and Exercise on Pregnant Musmusculus and Their Fetuses
Effects and Identification of Wound Healing Salivary Substances in White Mice
A Comparative Study of Sea Star and Mice Phagocytes

Induction and Study of Palatal Clefts in Albino Mice
Induction of Gallstones in Mice
Effects of Saccharin on Hamsters
Amoxicillin and Tetracycline Influence on Weight Gain in Albino Rats
Streptozotocin Induced Diabetes Mellitus in Sprague-Dawley Rats
Effects of Chloropromazine on Test Rats
Neonatal Hepatic Hypercholesterolosis: A New Neonatal Rat Fatty Liver Disease
Elimination Diet Versus Ritalin in the Treatment of Hyperkinesis in *Mus musculus*
The Neurochemical and Analgesic Effects of Narcotics on Rat Brain
The Effects of Ionizing Radiation on the Leukocytic Response of a Male Laboratory Mouse (CD-1 Specific Pathogen Free)
Role of the Pineal Gland in the Growth and Health of Rattus
Hemodynamic Differences in SHR and WKY Rats
Teratogenic Effect Caused by Alcohol in Rats' Offspring
The Effect Colored Light Has on the Activity and Weight Gain of the *Mus musculus albina*
Effects of Glucose and Tryptophane on Endurance of Mice
Caffeine Induced Hyperthermia in Rats
Studies on Gossypol: Antifertility Effect in Nutritionally Deprived Male Hamsters
X-Rays: Effects on the Offspring of *Mus musculus*
Compounds in Ascitic Fluid: Effects on Oxygen Free Radicals in Mouse Pertoneal Macrophages
Elimination Diet Versus Ritalin in Treating Hyperactivity in *Mus musculus*
Toxicological Effects of Six Common Pesticides on *Mus musculus*
Tartrazine (Yellow No. 5): As a Possible Agent of Cellular Degeneration in the Liver and Kidney in the *Mus* Balb-C
Isolation and Purificaion of a carboxylic-ester Hydrolase in Rat Liver
Radioimmunoassay of Rat Somatotropic Hormone
Quantitative Distribution of Aldolase Isozymes in Normal and Neoplastic Rat Tissues
In vitro Study of Estriol Conjugation in Mouse Liver
Study of the Metabolites of 5-Hydroxytryptamine in Mouse Lung
Analysis of Rat Plasma Lipoproteins by Gel-Filtration
Effect of Anoxia on High Energy Phosphate Compounds of Fetal Rat Brain
Regional Toxicity on Hematopoietic Stem Cells in Methylnitrosourea Administered Mice
Cloning of Mouse Embryos by Seperation of Blastomeres
Hemopoietic Stem Cells in the Nude Mouse
Increased Gamma Globulin Levels in Young Mice of the Leukemia-Prone AKR Strain
Effect of Gene *Wh* on Sperm Tail Protein Composition in the Syrian Hamster, *Mesocricetus auratus*
Comparison of Elemental Compositions of the Hypothalamus, Thyroid, Adrenal, Pituitary and Liver Cells of Mice, Using an Energy X-Ray Spectrometer
Hamster Habits: Male Versus Female
Amount of Light Required for Setting the "Biological Clock" of Hamsters
Geotaxis Behavior of Hamsters
Statistical Approach to Endocrine Relationships in Mice
Response to Auditory Stimulations in the Developing Rat
Color Blindness in Mice
A Reverse Mutation of the House Mouse
Morphological Examination of the X-Chromosomes of the African Mouse
Histochemical Investigation of Mouse Thymus in Three Stages of Growth
Early Developmental Study of Hammer-Toe Mice
Chinchilla Photoperiodism
Leucocyte Population of Six F_1 Hybrids Between Mice During Fourth Week of Age
The Effects of X-Ray on the Blood of Guinea Pigs

Ungulata

Characterization of Bovine Brain Monoamine Oxidase
Demonstration that the Aggulutinin Found in Calf Hearts Causes the Adhesion of Cardiac Muscle Fibers *in vitro*
Purification and Characterization of Bovine Placental Lactogen
Determination of Protein Concentrations in Bovine Secretions by Immunochemical Technique

ANATOMY

Tooth Collection
Vertical Section Through a Canine Tooth
Mounting a Skeleton
Skeleton of a Horse's Head
Anatomy of the Rabbit Skeleton
Comparative Skeletal Anatomy
Frog's Ear
External and Internal Anatomy of Fish
Anatomy of the Ear
Vetebrate Skeleton

ANIMAL BEHAVIOR

Patterns of Behavioral Development in North American Elk
A Behavioral Study of the Symbiotic Crab *Cryptochirus corallicola*
Geotaxic Behavior of *Drosphila melanogaster* Populations
A Three-Year Study: The Effect of Color on Mice
The Role of Na^+ -K^+ ATPase in Odor-Sensing: A Behavioral and Biochemical Study
Trees, Deer and Antler Rubbing
Study of the Behavior of Shrimps: Symbionts of the Echinoid *Diadema antillarum*

The Behavioral Effects of Opiate Agonists and Antagonists in the Pigeon
Behavior Patterns of the Barn Owl in the Northern Wasatch
Behavioral Study of Tropical Fish With Special Emphasis in Psychophysics and Hearing
A Two-Year Study on the Effects of an Electromagnetic Field on Klinokinesis
The Effects of Injectable Valium Upon Behavioral Attitudes in Mice
Computerized Simulation of the Hippocampal Theory of Mouse Behavior
Experiments in Animal Behavior
Handedness in Cats
Nutritional Requirements of *Acomys cahirinus* Investigated by the Self-Selection Method
Effects of Handling in Infancy on Behavior of the Wistar Albino Rat
Imprint or Instinct
Prenatal Auditory Imprinting in Chickens and Ducks
Handedness Investigation of Rodents

Psychology. Intelligence. Learning

Intelligence in Marine Animal Life
Ani-Maze: Computer Simulated Intelligence
The Study of Memory Transfer From Mother to Offspring in *Mus musculus*
The Training of *Carassius auratus* Using Geometrical Figures to Guide the Fishes' Responses, Paying Attention to Learning Transmission, Stimuli Transfer and Memory in a Maze
Discovery and Analysis of Novel Memory System in Lower Invertebrates
Will Vitamin B-12 Affect the Learning Ability of Planaria?
Response of Octopus to Pavlovian Conditioning
A Comparative Study of Learning, Aggression and Perceptual Capabilities in the Land Hermit Crab *Coenobita clypeatus* (Herbst)
Learning Sets in Rodents
Instrumental Learning With Planaria
Learning Ability of the White Rat in a Tactile Descrimination Situation in Absence of Fear
Experiment to Test Ability of Young Lemon Sharks and Young Bull Sharks to Learn
An Investigation of Horse Sense
Cannibalistic Transfer of Memory in Planarians

Social Relations. Animal Societies

Role of Dominance Display in Rhesus Macques
Habitat Selection and Behavioral Patterns of Small Mammals
Some Aspects of Ecology and Behavior of a Mallard Population in a Defined Sanctuary Area
Defining Dominant Patterns of Physical Activity in *mus musculus*
Social Behavior of Female Bactrian Camels
Does Oxytocin Produce Maternal Instincts in Mice?
Aggressive Behavior in Crickets
Social Ascendancy in Tropical Aquarium Fish
Relationship of Territorial Possession to Dominance
Effects of Crowding on Two Inbred Strains of Mice
Effect of Environmental Changes on Behavior in Mice
Territorial Behavior of the Mockingbird
Investigation of the Predatory-Prey Relationship Between the Mosquitofish and the Chain-Pickerel
Maternal Licking Behavior in Mice
Artificial Pressures Affecting Animal Populations

Seasonal Habits. Periodicity

Behavioral Study of Two Species of the Genus *Uca* With Special Emphasis in Their Biological Rythms
Weather and Bird Migration
Hibernation of Reptiles
Climate and Bird Migration Patterns on the Texas Coast

Voice. Communication

Aspects of Communication Among Ringneck Pheasants - An Investigation of Distinct Vocalization Patterns
Intepretation of Sounds Made by Guinea Pigs
Communication of Guinea Pigs
Are Mice Capable of Communicating With Each Other?

Navigation

Effects of Geomagnetism on the Homing Ability of Pigeons
Interaction vs. Back-up: Testing Two Theories of Mouse Navigation
A Comparative Study of the Mechanisms of Flight in Odonta and Diptera

EMBRYOLOGY

Chick Embryo Studies: Intravenous Injection of Beta-Aminopropionitrile and Epstein-Barr Virus
Screening Test for Embryotoxicity
Study of Fetotoxins in Prenatal Developmental and Neonate Behavior
Effects of Diagnostic Ultrasound on Chick Embryos
Effects of NutraSweet^{TM} on Chick Embryos
Agent Orange Components, 2,4-D, 2,4,5-T: A Study of Toxic Reactions on Chicken Embryo Morphology
Effect of Glucocorticords on the Chicken Embryo
Early Stages in the Development of a Fish Egg to Chick
Embryology of the Chick - Recorded on Color Film
Bone Development of the Chick Embryo
Embryonic Chick Heart as a Biological Thermometer
Pattern of Ossification in the Chicken Embryo
Raising a Chick Embryo in a Homemade Germ-Free Isolator
Measurement of the Redistribution of Xanophyll in the Developing Chicken Egg

Chlordiazepoxide Hydrochloride and Embryonic Development of the Chicken
Origin of Melanophores From the Neural Crest in the Chicken Embryo
Effects of Iodine on Chicken Embryos From 12 to 18 Days
Effects of Magnetic Field on Developing Chicken Embryo
Effect of Newcastle Virus on Chick Embryos
The Effects of the Tranquilizer Compazine on Chick Embryos
Response in Chick Embryos to Virus Vaccines
Embryological Development of an Organ
Blood Circulation in the Chick Embryo
Metamorphic Development of Opercular Chamber of *Rana pipiens*
Development of *Rana pipiens* During Metamorphosis
Effects of Colchicine on the Chromosomes of Twinned *Rana pipiens* Embryos
Hatchability by Germinal Disc Observation
Embryo Sac Development of *Oxalis stricta*
Effects of Adrenalin Injection on Developing Chick Embryos

HUMAN ANATOMY — QM

Human Umbilical Arteries
Cephalometric Variabilities Determined via Statistical Data
Analysis of the Human Vocal System in Vowel Production
Red and White Muscle Fibers in Relation to the Iris
Development of the Artificial Hybrid Pancreas
Nail and Skin Topography Using a New Photographic Technique
The Inside Story
Studies of the Adrenal Gland
Nerve Studies
Comparative Anatomy of the Eye
The Muscle System
The Measurement and Views of a Human Skull
The Anatomy of the Head
The Human Heart
The Construction of the Human Spinal Column
Anatomical Collation
Dorsal View - Human
Sex Differences in the Human Skeleton
The Digestive System
Arteries, Veins and Capillaries
Alimentary Canal

HUMAN AND COMPARATIVE HISTOLOGY

Zinc Content in Bones as an Indication of Diet
Computer Simulation of a Neural Tissue
Structural and Comparative Analysis of the Human, Rat and Hamster Basal Body Rootlets in Ciliated Cells of the Tracheal Epithelium
Oral Anatomy and Histology

PHYSIOLOGY — QP

Kirlian Effect: Aura or Corona?

PHENOMENA OF ANIMAL LIFE (GENERAL)

Influence of the Environment (General)

Radiation: How Much Is Too Much?
Possible Detrimental Effects of Oxygen on Lifespan
A Two-Year Study of the Effects of Ultrasound on Growth and Development
Cytodynamic Effect of Vibratory Stresses
Effect of Acute Stress on Blood Cholesterol
Effects of High "G" on Living Things
Sound Affects: Physiological Measurement of Emotive Reactions
Dietary Control of Ionizing Radiation
Protective Effect of Serotonin Against Gamma Radiation
Protection From Total-Body Radiation
Radioactivity Around Us
Radiational Effects on a Living Closed Life System
Effects of Prolonged Flight on the Red Blood Cells of Mammals
Physical and Psychological Effects of a Prolonged Stay Underground
Comparing the Effects of the Absence of Different Light Colors on Living Organisms

Developmental Physiology

Aging: A Chemical, Cellular and Physiological Analysis
Studies in Aging
New Bodies for Old
How Man Grows
How Long Will You Live?

PHYSIOLOGY OF THE TISSUES (GENERAL)

Effects of X-Ray Radiation on Human Bone
The Effects of Macromolecules on the Growth of Hydroxyapatite Crystals
Single Identified Nerve Cells in Tissue Culture Conditions Affecting Regeneration
Occurence of Beta-Alanine in Human Hair
Electrically Induced Osteogenesis
Properties of the Action of a Myotoxic Enzyme on Sarcoplasmic Reticulum From Skeletal Muscle
Chemical Analysis of Human Teeth
Tissue Culture Experiments
Hydrolysis of Keratin From Hair
Experiments With Human Hair
Composition of a 100 lb. Person
Structures of Human Skin
Histologic Effects of Podophyllin on Epithelial Tissues: *in vitro* and *in vivo* Studies
Effects of Fixatives on Tissue
Tissue Culture Techniques

BLOOD

Design of an Integrated Instrument for the Measurement of Human Blood Volume
The Application of Ascorbic Acid as a Hypothetical Whole Blood Storage Supplement
Comparative Hemolysis of the Blood From Three Selected Vertebrates
Comparison of Bovine and Human Blood
Blood, Our Amazing Life-Stream

Distribution of Body Fluids
What Your Blood Tells
Effects of a Magnetic Field on Electrophoresis of Blood Samples
Low Temperature Blood Preservation

Composition and Chemistry

pO_2 Levels of Whole Blood and Fluorocarbon-Polyol Emulsions After Saturation With Oxygen and Carbon Monoxide
Effects of Small Molecules Upon the Oxygen Affinity of Hemoglobin
Evaluation of Thrombin Activity Towards Two Synthetic Substrates
Multiple Analysis of Genetic Markers in Bloodstrains
Natural vs. Artificial Blood: Ability to Release Oxygen
Iron Content of the Blood
Biochemistry of the Coagulation Process of Blood
Blood Components: Tests and Instruments
Experiments With Human Blood
Cytogenetical-Quantitative-Qualitative Analysis of the Blood
Electrophoretic Separation of Blood Proteins
What are the Effects of Anticoagulants on Blood Viscosity?
Velocity Profile and Axial Accumulation of Blood
Studies of the Human Blood Basophil
Purification and Electron Microscope Study of Fibrinogen of Some Lower Animal Species
Development of the Peripheral Blood of the *Chelydra sepentina*
Ozone and Human Blood

Leucocytes. White Blood Cells

Motility of Human Leukocytes
Individualized Circadian Rythms in Leucocytes
Effect of Foreign Substances on Leukocytes
A Modification of the Quie Method for Measurement of Migration Neutrophilic Polymorphonuclear Leucocytes
Growth and Differentiation of Bone Marrow Cells Into Specific Types of White Blood Cells
Intermediary Metabolism of Normal White Blood Cells
Variations in the Differential Leukocyte Count During Digestion
Stainability of Acidophilic and Basophilic Dyes on White Blood Cells and Artificial Systems

Erythrocytes. Red Blood Cells

Optimum Cooling Rates for Cryopreservation of Human Erythrocytes
Isolation of Histone from Chicken Erythrocytes
Effect of Microwave Radiation on Red Blood Cell Hemolysis
Erythrocyte Sedimentation Rate: A New Method
Modulation of Fc Receptor Mediated Phagocytes of IgG-Coated Erythrocytes by Human Neutrophils
Effect of Increased Pressure on the Fragility of the Red Blood Cell and Plasma Hemoglobin Levels
Isolation and Characterization of Hemoglobin
Isolation of Spectrin From Human Red Blood Cells
Effect of *Pseudomonas hirudinis* and *Staphylococcus aureus* on Hemolysis and Erthrocyte Fragility
An Objective and Subjective Comparison of Erythrocyte Size
Combined Effects of Complementation and Enzymatically Generated Superoxide and Hydrogen Peroxide on Erythrocyte Lysis
Studies on the Agglutination of Erythrocytes by Antisera to Human Lipoprotein B and Lipoprotein D
Electrophoretic Patterns and Circular Diachroic Spectra of the Cyanate and Flouride Derivates of Hemoglobins A and B
Hemolytic Effects of 2-Chlorethanol on Human Red Blood Cells
Comparative Biochemical Analysis of Mouse Hemoglobins Using Electrophoresis, Chromatography and Amino Acid Analysis
Detection of Hemoglobin Variants by Hemoglobin Electrophoresis
Study of Oxygen Transport in Various Mammalian Erythrocytes by the Use of Oxygen Dissociation Curves
Effect of Hg^{++} on ATP Dependent Transport in the Erythrocyte
Effects of Various Protective Argents on the Cryopreservation of Human Erythrocytes
Influence of pH on the Deformability of Human Erythrocytes as Measured by the Microsieving Technique
Sites of Erythrocyte D-Glucose Binding
Hemoglobin Al in Aging Red Blood Cells in Diabetes Mellitus
Bioelectric Dedifferentiation of Nucleated Erythrocytes
Analysis of Several Insectan Hemolymphs That Agglutinate Human Erythrocytes
Effects of Mucoglobulin and Euglobulin Factors on the Hemolysis of Sensitized Erythrocytes
Artificial Transplantation and Propagation of Embryonic Nucleated Red Blood Cells
Isolation of Erythropoietin
Erythropoietin: Generator of New Blood
Comparative Study on the Phosphoglyceric Acid Cycle of Mammalian Erythrocytes
Electrophoretic Mobility of Hemoglobin
Human Blood Hemoglobin Electrophoresis
The Effect of Erythrocytes in Urines
Testosterone in Red Cell Formation

Platelets

Role of Proteins in Platelet Aggregation
Negative Air Ion Effect on Blood Platelet Aggregation
The Effects of Some Environmental Chemicals on Platelet Function
Uptake of Prostaglandin E_1 by Platelets
Direct Effect of 2-Hydroxyestradiol (Catechol Estrogen) on Platelet Aggregability
Membrane Deformability Technique for the Study of Blood Platelets
Human Plasma Platelet Response to *in vitro* Air Ion Exposure

Comparative Studies on the Effect of Plasmin on Human Platelet Fibrinogen and Plasma Fibrinogen

Blood Groups

Discovering New Methods of Typing Blood Using Seed Extracts
ABO Blood Group Determination of Human Hair Using an Absorption-Elution Method
The Xg^a Blood Group System: Inheritance of an X-Linked Trait
Blood Typing and Determination of Rh Factor

Plasma and Serum

Endothelial Cell Growth Factor in Human Serum
Protein Binding: Intermolecular Associations Between Indomethacin, 'Twin 80' and Human Serum Albumin
Isolation of an Endogenous Inhibitor of Dopamine-B-Hydroxylase in Human Plasma
Partial Characterization of the Rosette Factor and Cytotoxicity in Tumor-Bearing Serum
Changes of Plasma Renin Activity Resulting From a Redistribution of Blood Volume in Response to Variations in the Force of Gravity
Effect of Ionic Strength on Plasminogen Activation
Effect of Diallyl Disulfide Upon Prothrombin Complex Activity in Human Blood Plasma
Determining a Range for Normal Levels of Fibronection in Human Plasma
Quantitation of Epsilon Aminocaproic Acid in Human Serum
Electrophoresis of Abnormal Human Blood Serum
Zone Electrophoresis of Blood Serum Protein
Effects of Vitamin A Deficiency on Blood Serum Proteins
Occurrence of Haptoglobin in Cord Blood Serum and Its Quantitation of Immunodiffusion and Typing by Disc Electrophoresis
Binding of Thyroxine-I-131 to Serum Proteins

CARDIOVASCULAR SYSTEM. CIRCULATION

Effect of Vasodilation in Humans as a Result of Increased Physical Activity on the Corona Discharge Recorded Using Kirlian Photography
Baroreceptor and Pulmonary Reflex Interactions in Man
Method for Measuring Cardiovascular Physiologic Age and Function
Arterial Circulation
Human Circulatory System
Circulation in Man Before and After Birth

HEART

Acetylcholine Effects on the Mammalian Heart: Modulation by pH
Computer Assisted Measurements of Cross Sectional Echocardiography
Utilization of Echocardiography to Determine Left Ventricular Response to Exercise
Correspondence Between First Heart Sound Vibrations and the Rise of the Carotid Pulse Tracing
The Physiology of Cardiac Sounds
Neurohumeral Theory and Cardiac Inhibition

RESPIRATION. RESPIRATORY ORGANS

Effects of Automotive Exhaust Emmisions on the Lifespan and Respiratory Rate of Human Lung Cells
Vital Energy - Respiration
Metabolism and Respiration
Metabolism - Effect of Diet on Breathing

NUTRITION

An Apple a Day - Why?
Soybeans: Nutritious and Delicious
Oxidation Answers Food and Energy Needs
Zone Elecrophoresis Shows How Much Protein You Get From Food

PHYSIOLOGY OF THE DIGESTIVE TRACT. DIGESTION

Effect of Antacids on Protein Digestion in the Stomach
pH Changes During Peptic Digestion
The Human Digestive Tract and Osmosis
Influence of Temperature on Ptyalin Activity

METABOLISM

Fatty Acid Metabolism of Bovine Liver Mitochondria as Compared to That of Rat Liver Mitochondria
Metabolism and Life Processes
Chemical Factors Affecting Metabolism
Biliary Metabolism of the Trace Elements
Opposition of Thyroxin and Insulin in Intermediary Glucose Metabolism
Influence of p^{32} on Amino Acid Metabolism
Metabolism in Animals
Effect of Differentiation of Tissue on Metabolism
Does Protein Deficiency Affect Metabolism?
Effects of Diet Pills on Metabolism

GLANDS

Role of Serotonin in the Mammalian Thyroid Gland
Coexistence of Alpha 2U Globulin and Luteinizing Hormone in Cells of the Rat Anterior Pituitary
Splenic and Hepatic Uptake of Particulates From Circulating Blood
Adrenal Glands - Metabolic Regulators
A Thyroid Metabolism Study
Comparative Effects of the Thyroid Gland
Gonad-Pituitary Relationship
Method for Determining the Number of Islands of Langerhans in a Pancreas
The Thymus Hormone
Thymus - Its Effect on Resistance to a Parasitic Infection

SECRETIONS

Quantitative Biochemical Analysis of Lachrymal Secretions
Transit Time and Bile Pigment Level of Various Fiber Diets
Role of Bile in the Digestion and Absorption of Lipids
Interaction of Bile Salts and Guest Molecules
Properties of Gastric Secretory Inhibitor in Saliva
Investigations on the Salivary Phosphatases
Snake Venom
The Physiology of Lactation in the Cow
Study of Salivary Amylase

REPRODUCTION

Ovarian Function

MUSCULOSKELETAL SYSTEM. MOVEMENTS

Indirect Method of Determining the Stiffness Constants of the Facets of the Lumbar Spine
$HgCl_2$ and Muscle Contraction
Explanation of Animal Strength by Examination of Tendon Insertion in the Human Forearm
Computer-Aided Comparative Analysis of Human Speech Patterns
Effect of Arginine Depletion on Muscle Development in Culture
Kymograph and Muscular Reaction
Possible Relationship Between Muscle Glycogen and Localization of *Trichinella spiralis*
Muscle Physiology
The Physical Properties of Myosin
Methods and Study of Nervous and Muscular Activity

NEUROPHYSIOLOGY AND NEUROPSYCHOLOGY

Nervous System

Human Reaction Time to Monomodal and Multimodal Presentation of Visual and Auditory Stimuli
Computer Simulation of Neural Tissue
Evaluation of CO, CH_4, NO_2, SO_2 Permeation Into Neurons Through Microscopy and Chromatography
Effects of Cigarette Smoking on Eye/Hand Coordination
Effect of Pyrilamine Maleate on Eye/Hand Coordination
A Study of Human Neural Nuclear-Cytoplasmic Radiosensitivities After Exposure to X-Irradiation
Neuron Regeneration
Computer Simulation of Neuron Function
Sulfhydryl Reagents Reversibly Inhibit Synaptic Transmission
In vitro Study of Neural Axon Development
Reaction Time in Response to Stimuli
The Path of a Reflex Action
Model of Reflex Arc and Conscious Thought
Neurological Organization
How Alcohol Affects the Nerves
Do Nerve Cells Multiply?

Brain

Construction and Demonstration of an Electronic Brainwave Amplifier
Exploration Into the Relationships Among Brain Organization, Handedness and Sex
Hemisphericity: Determination and Reversal Pertaining to Visual, Audio, Emotional, Tactile and Small Motor Skills
Detection of Angiotensin II In the Primate Brain by Immunocytochemistry
Design and Modification of Electronic Equipment and Computer Programming for Analysis of the Human Brain's Activities During Sleep
Correlations of Sensory Perceptions to Handedness and Brain Hemisphere Dominance
Hand: A Study of Relationships Between Hand Dexterity, Hand-Demension Ratios and Brain Hemisphericity
What Factors Influence Hand Dominance?
Cerebral Commissurotomy and Hemispheronomy
The Hemispheric Division of Emotional Labor
A Study of the Cerebral Hemispheric Specialization of Linquistic and Muscial Short-Term Memory
Sleep Patterns and Performance in Preadolescent Males
Investigation Into the Biochemical Basis of the Memory Trace Using Effectors of RNA and Protein Metabolites
Computerized Analysis of Metabolic Data Derived From Brain by Optical Techniques
Relationship Between Brain Hemispheric Dominance and the Writing Position of the Preferred Hand
Is Knowledge Edible?
RNA: A Learning Factor?
RNA and the Memory Factor
Computer Simulation of the Brain
Long-Term Memory
An Investigation in Immediate Recall and Retention of Memory Power
Memory and Nucleic Acid
The Physiochemical Basis of Memory
A Structural Basis for Biochemical Alteration of Memory
How the Brain Controls the Body
The Living Brain
Hypnotic Sleep
Sleep - A Habit? Rest - Necessary!
Dreaming Habits of High School Students

Senses. Sensation. Sense Organs

Cutaneous Senses

Determining the Possibilities of Supplementing Visual or Auditory Senses With the Tactile Sense
Tactual Color Discrimination

Chemical Senses

The Stereochemical Theory of Odor
Investigation of Butterhead Lettuce Bitter Taste: A Possible Human Recessive Genetic Factor

Finding the Taste Threshold of One Hundred Teenagers
Sensitivity of Sugar Taste in Lucilia sericata
Sodium Chloride Taste Threshold in Humans

Hearing

Effects of Interaural Time Delay on the Spatial Perception of Sound
Detection of Variable Amplitude and Variable Duration Tone Under Masking Stimulus
Binaural Localization of Sound Sources
Sound Phenomena
Sound Source Localization by the Human Ear
Ears and Their Care

Vision

The Influence of Connotative Language Clues on Color Perception
Action of Light Upon the Visual Pigment Rhodopsin
Eye Movements in Reading
Mapping the Color Sensitivity of the Human Eye
Connections Between Visual Processing and Binocular Vision
Visual Evoked Responses to Positive and Negative-Contrast Stimuli
Abnormal Visual Input Affects Retinal Thickness
Chromograph for Measuring Defects of Color Vision
Relationship of Exercise to Retinal Blood Vessels and Perihperal Visual Fields
Color Perception: A Study on the Influence of Connotative Language Clues on Color Perception
Optical Illusion - Do You See What I See?
The Eye: A Study of the Induction of Retinal Proteins by Cortisol and a Comparison of Intraocular and Extraocular Muscle Proteins
Design and Construction of a Computer-Controlled Anomaloscope
Neural Substrates of Vision and the Evolution of the Alphabet
A Study of the Perception of Visual Illusions
Analysis of the Perception of Color Derived From Alternating Black and White Images
A Physiologically Perceived Three-Demensional Graphic System for Microcomputers
Relationship Between the Perception of Man and That of the Shark
Visual Fields and the Perception of Words
Visual Acuity Testing With Mentally Retarded Children
Investigation of Various Factors Affecting the Perception of Vertical and Horizontal Lines
Effect of Environment on Optical Illusions
Light Sensitivity
Light Retention by the Eye
Experiments in Vision and Glare
Visual Disarrangement and Readjustment
Color Blindness: Its Effect on Man
Color Acuity of the Human Eye at Low Light Levels
How and Why Do Optical Illusions Occur?
Is Texture Density or Motion Parallax the Determining Factor in Depth Perception?

ANIMAL BIOCHEMISTRY

The Non-thermal Effects of Microwave Radiation on Biochemical Reactions
Inexpensive Ways of Adding Calcium to the Diet
Eighteen Essential Elements of Life
Physiological Effects of Organic Solvents

Organic Substances

Proteins. Amino Acids

Discovery of Protein Bound to Mitochondrial DNA: Its Role in Aging and Cancer
Interaction Between Transfer RNA and Amino Acids
Lipoprotein Patterns in Persons Under Age Thirty
Binding of Methlymercury to Cysteine
Chemical Modification of a Lysine Residue
Study on Chemically Modified Collagen
Effects of Steroids on Binding of Low Density Lipoproteins to Cultured Aortic Smooth Muscle Cells
Synthesis, Isolation and Analysis of Crosslinked Actin
The Isolation, Immunochemical and Chemical Characterizations of the Lipoprotein Fractions
Study of Extracellular Amino Acids and Proteins Found in the Medium of Aspergillus niger and Aspergillus clavatus
Amino Acids - Key to Regeneration?
Methods for the Determination of the Absorption Rates for Amino Acids
Effects of High Intracellular Sodium on the Biokenetics of Amino Acid Transport
Quantitative Analysis of the Free Amino Acids in Serum: Technique Development and Medical Applications

Hormones

Hormone Analysis
Growth Inhibiting Effect of an Adrenal Cortical Hormone
Hormonal Effects on Growth and Morphology of Tetrahymena pyriformis
Effects of Certain Mammalian Hormones on the Metamorphosis of Tenebrio molitor
Function of Thyroid Hormones
Effects of Gonadal Hormones in Parabiosis
Effect of Growth Hormones on Thymidine Uptake in Fibroblasts
Thyroid Hormone: New Mechanism of Action
Correlations Between Vertebrate and Invertebrate Growth Hormones
The Direct Qualitative Effects of Insulin on Basement Membrane Proteoglycans
Studies on Growth Hormone: Identification of Receptors for Growth Hormone and Prolactin Using Cross-Linking Techniques

Enzymes

Inhibition of Xanthine Oxidase by Folic Acid and Its Coenzyme Derivatives
Enzymatic Degradation

Use of Glucose Oxydase Enzyme Electrode in Conjunction With Recombinant Genetic Techniques to Produce an Artificial Pancreas
Computer Simulation of Enzyme Systems
The Role of Carbonic Anhydrase in Removing CO_2 From the Body
Proteinase Enzymes: Inhibition of Activation
A Comparative Study of the Activity of Proteolytic Enzymes
Pepsin and Its Formation of Inhibitor-Enzyme Complexes
The Influence of Large Molecules on the Action of Enzymes
Isolation and Kinetic Properties of Tyrosinase
An Inhibition of Pepsin by Zymogen Activation Porcine Pepsinogen
Trypsin Activity as Affected by Varying Magnetic Fields
Kinetics and Inhibition of the Enzyme Methemoglobin Reducatase
The Characterization of DNA Polymerase Alpha
A Study of the Active Site of the Enzyme, Adenosine Triphosphatase, Using Specific Covalent Labelling
Effects of Cofactors and Inhibitors on Alkaline Phosphatase
Activator-Substrate Interaction and pH Effects on Enzymatic Activity
Studies of Thin-Layer Gel Filtration and Conversion Factor(s) of Adenosine Deaminase
Study of Acid Proteinase Inhibitor From Porcine Spleen
Effect of Metal Ions on the Kinetics of the Enzyme Acetyl Cholinesterase
Peptide Synthesis and Analysis: Bovine Pancreatic Ribonuclease
Effectiveness of Catalase in Varying Acid and Base pH Values
Lactic Dehydrogenase Isoenzymes in Various Animal Tissues
Effect of Poison on Enzymatic Activity: Inhibition of Salivary Amylases and Amyloglucosidase by Lead (II) Nitrate
Inactivation of Hexokinase by Pyridoxal Phosphate
Enzymic Saccharification of Cellulose
Comparative Biochemistry of Hepatic Microsomal Mixed-Function Oxidases
Purification of RNA Polymerase From Rat liver Mitochondria
Metamorphic Effects of an Unknown Termite Enzyme of the Passive Larvae of the Ant
Enzymatic Hydrolysis of the Fibrous Polysaccharides of *Chlorella pyrenoidosa*
Purification of Phosphoglyceromutase
Isolation and Purification of Propionyl Carboxylase
In vitro Activity of Adaptive Enzymes
Determination of Optimal pH of Alpha Amylase Activity
Microdetermination of Monoamine Oxidase by Gel Electrophoresis on Polyacrilamide Gels
Isolation and Characterization of Urokinase
Sequence Studies on Bovine Alph-Chymotrypsin
Comparative Study of Several Methods of Determining Serum Lactic Dehydrogenase and Its Isoenzymes
Enzymatic Analyses: A Three-Year Study
Alkaline Phosphatase Activity of Kidney
Estimation of Urease Activity, using Urea as a Substrate
Kinetics of the Urea-Urease Reaction
Enzyme-Substrate Complex
Proteolytic Enzymes in Hog Gastric Mucosa
The Role of Enzymes in Development
Action of Enzymes in the Process of Digestion
Paramagnetic Nature of Catalase
Catalase, Its Chemical and Physical Nature, Relationship to the Gram Stain, and Crystallization
Kinetics of Homoisocitric Dehydrogenase
Lactic Acid Dehydrogenase: The Existence of an Enzyme-Coenzyme Linkage at the Disulfide Bond Site?

Nucleic Acids

Mapping of Recombinant Mitochondrial DNA
Effects of Dimethyl Sulfoxide on the Structure and Synthesis of Deoxyribonucleic Acid
Evidence That Thioredoxin is Required for Binding of Clucocorticoid Receptors to DNA
Kinetics and Relationship of DNA and Histones During Cell Cycle
Role of Nucleic Acids on the Hemagglutinin Operon in *Crassostrea virginica* Hemolymph
4NQO Induced Damage in DNA of Human Lymphocytes
Binding of 3,4-Benzpyrene to Calf Thymus Deoxyribonucleic Acid: Determined by Fluorescence Excitation Spectroscopy
Spectroscopic Study of 9-Hydrazinoacridine and Its Interactions With DNA
Inhibition of DNA Synthesis by Rifamycin AF/013
Effect of Cobalt Radiation on DNA
Analysis of DNA Repair After Gamma Exposure
Effect of Cobalt Radiation on DNA
Isolation and Nucleotide Sequence of a Small DNA From Human Cells
Effect of Diaziquone on the Structure of DNA
Taxonomic Relationships and Restriction Endonuclease Analyses of DNA
Autoradiographic Technique for Estimating the Rate of DNA Synthesis in Ehrlich Ascites Tumor Cells With a Flow-Cytometer
Interactions Between Meso-Tetra(4-N-methylpyridyl)-Porphine Tetraiodide and Different Nucleic Acids
Anthraquinone-DNA Interaction
NMR Line Widths for Structure Analysis of tRNA
Isolation and Characterization of Deoxyribonucleoprotein of the Protozoan, *Tetrahymena*
Isolation, Identification and Application of Deoxyribonucleic Acid to Ultraviolet Irradiated *Aerobacter aerogenes*
A Technique for the Detection and Quantitative Determination of Deoxyribonucleic Acid in Plasma
Practical Physiological Aspects of Energy From ATP: The Adenosine Triphosphate Energy Converter
Control of Feedback Inhibition of Purine Synthesis by Methyl Purines and Pyrimidine Nucleosides

Production of Efficacious RNA by a Single Complementary Strand of DNA in the Transforming System of Bacillus subtilis

Pigments

Biochemical and Ecological Properties of the Bipyridyl Pigment Formed by Arthrobacter pyridinolis
Spectroscopic Resolution of the Absorption Bands of Cytochromes a and a_3 by Numerical Analysis of Absorption Spectra
Possible Differences in Crystalline Structure of Carotene
Factors Affecting the Stability of Porphyrins
Chemical Study of Carotenoids and Vitamin A in Invertebrates

Carbohydrates

Reaction Kinetics of Glucose Fermentation
Optical Rotatory Dispersion of Polysaccharides
The Effect of D-Glucose on the Cardiovascular System
Construction of a Lambda Galactose With Hybrid Attachment Sites

Lipids

Dietary Supplements of Vitamin E and Black Seaweed: Effect on Cholesterol
Gel Filtration of Human Serum Cholesterol
Synthesis and Metabolism of Phospholipids in Human Y79 Retinoblastoma Cells
Determination of Fat in Collagen Preparations
Cholesterol Factor Tests
Study of Controlled Cholesterol Digestion
Cholesterol in Chicken Eggs: Effects of Age, Fertility and Refrigeration
How Does a High Fat Diet Affect Blood Viscosity?
From Egg to Cholesterol
Identification and Estimation of Fatty Acids Liberated From Milk Fat by Three Methods of Lipase Activitation

Vitamins

Inference of Free Radical Mechanisms Involved in Vitamin K-Dependent Carboxylation
Effect of Vitamin E on Prostaglandin Synthesis
Effects of Microwaves on Vitamins A and E
How Vitamin E Preserves Vitamin A
Effects of Biotin on Regeneration in Dugesia tigrina
Comparative Studies of the Deterioration of Vitamin C in Various Samples
Kinetics of the Oxidation of Ascorbic Acid by Hexacyanoferrate(III)
Effects of Ascorbic Acid Deficiency on HMG-CoA Reductase Activity
Determination of Ascorbic Acid Interference With Glucose Oxidase and Copper Reduction Tests for Urinary Glucose
In vitro Vitamin K Dependent Carboxylation of a Pentapeptide
Qualitative and Quantitative Determination of Iron in Vitamin Tablets Using Three Spectroscopic Methods
Establishing a Vitamins B_{12} Bioassay Technique Using Euglena gracilis
Ameliorstory Effects of Vitamin E on Nitrogen Dioxide Exposed Drosophila
Factors Affecting Vitamin C Loss
Biosynthesis of Vitamin B_6 in Candida albicans
A Biosythesis of Vitamin B_{12}
Vitamin D: Too Much or Too Little of a Good Thing
What Are Vitamins?
The Necessity of Vitamins in the Body
One of the B Complex Vitamins
Effects of Vitamins on the Growth of Yeast
Use of Ascorbic Acid in Beverages
Estimation of Vitamin C in Fruit Juices

Miscellaneous

Biological Activity of Sesquiterpene Lactones
Use of Antioxidants as Antimutational Agents
The Use of Antioxidants for Protection of Tissue Cells and Tissue From the Harmful Effects Caused by Ultraviolet Radiation
Determining the Effects of Antioxidants on the Harmful Effects of Radiation
S-Adenosylmethionine as the Methyl Donor in the Aberrant Catabolism of Serotonin

EXPERIMENTAL PHARMACOLOGY

Effects of Insulin on Neuronal Cultures in Serum-Free Defined Media
A Model Enzyme Theory on the Analgesic Mechanism of Aspirin
Effects of Aspirin on the Membrane of the Lysosome
Chemosensory Effect of Histamine and Antihistamines on the Ciliate Tetrahymena pyriformis
Acetylcholine: Its Antagonists and Its Augmentors
In vitro Study of the Oxidation of Hemoglobin by Spleen Homogenates Through an Enzymatic Pathway
Lysozyme: A Natural Antibiotic?
Andrenalin Chloride: Effect on Heart Rate
Hypericin: Possible Advantages of a Photosensitizer's Use as an Antibiotic
Synthesis and Analyses of Two Nickel Derivatives of Sparteine
In vitro Production of Histamine After the Addition of Niacin to Whole Blood
Adsorption of Bile Acids by Wheat Bran, Oat Bran and Alfalfa
Synergism and Antagonism in Antibiotic Combination
Influence of Cigarette Smoke and Derivatives on Rat Cilia
Effects of Adriamycin on DNA
Lysozyme - The Natural Antibiotic - Potential Replacement for the Synthetics
Discovery of the Toxin Atropine in the Secretions of Manduca sexta
Preparation and Immunochemical Study of the Phytohemagglutin Ricin
Effects of Chlormycetin and Percorten Acetate on Protein Synthesis
The Metabolism of Chlorpromazine

Quantitative Analysis of the Interaction Between Human Blood Low-Density Lipoproteins and Terramycin
Determination of the Active Site of Lysozyme

Toxins. Venoms. Poisons

Effect of Various Staphylococcus aureus Cell Wall Exotoxins on Human Leukocyte Levels
Chemical Nature of the Toxins Secreted by Aiptasia pallida

MICROBIOLOGY — QR

TECHNIQUE

Identifying Bacteria by Gas Chromatography
Use of Benzalkonium Chloride as an Isolating Agent of Actinomycetes
Development of a New Technique in Immunoelectrophoresis
Fecal Coliform Analysis of Mussels and Their Environment
Isolation of the Isoleucine-Valine Gene From Escherichia coli
Isolation of Chromobacterium lividum
Isolation of a New Class of Mutants Restoring Protein Secretion in Strain SE2078 of Escherichia coli
Electrophoresis-Convection Apparatus Redesign and Construction: Preparative Applications to Immunoelectrophoresis
Bacterial Test for Mutagens Combined With a Sensitivity Test for Anti-Cancer Substances
Model for the Study and Manipulation of Interactions Among Epiphytic Bacteria
Influence of Hyperbaric Pressure, Vacuum and Mixed Gases on the Antimicrobial Activity of Piperacillin
Purification and Characterization of Flagella From the Alkalophile, Bacillus firmus RAB
A Study of the Photosynthetic Processes and Phototaxis of Selected Microorganisms Using Monochromatic Light
Practical Method for Making and Separating Protoplasts Made From Bacillus megaterium Cell in the Early Stages of Sporulation
Bacteriology Experiments
Determinative Study of Bacteria
Photoreactivated Bacteria
Effects of Vacuum on Bacteria
Identification of an Unknown Bacterium
Bacterial Pollution Indicators
Biophysics in Radiation Microbiology, Computer Analysis and "Gnotobionics"
Two Methods for Measuring Germicidal Effects of Disinfectants
Microscopic Study of Roach for Hansen Bacilli
Optical Diffraction Studies of Bacterial Flagella
Isotopic Study of CO_2 Fixation by Heterotrophic Bacteria
Tetrazolium Test for the Diagnosis of Significant Bacteriuria
Bacterial Identification Through Characteristic Electrophoretic Patterns
Photoreactivation of Escherichia coli B After Inactivation by Ultraviolet Irradiation
Extraction and Identification of Carotenoids Present in Two Strains of Bacteria
Gas Chromatographic Analysis of End Products of Streptococcus lactis Variety Tardus
Microbiological Techniques of Blood Analysis, Urinalysis, Staining

Culture

Protective Effects of Flavin Mononucleotide Upon the Luminescence of Cultures of Photobacterium fischeri Irradiated With Ultraviolet Light
Studies on the Nutrition and Continuous Cultivation of the Cellulolytic Bacterium Ruminococcus albus
Effects of Incubation Temperatures on the Survival of Cultures of Neisseria meningitidis
Preparation, Growth and Study of Cultured Bacteria
Tissue Culture, Tumors and Microbes
Mathematical Formula for Predicting Growth Curve of Bacteria
Mathematical Modeling of an E. coli Culture's Growth Under Different Temperatures
Identifying Bacteria by Changes in the Electrical Resistance of the Culture Media
Determining Number of Organisms in a Bacteriological Culture
Isolation and Cultivation of Drug-Fast Bacteria
Morphological Study of Streptococcus in Pure Cultures

BACTERIA

Characterization of New Facultatively Alkalophilic Strains of Bacillus
Buffering Capacity of Bacteria
Antibiotic Production by Eubacteria
Bacteria and Flies
Bacteria and Environment
In the Path of Fleming
The Multi-Colored World of Microorganisms
Bacteria and Molds From Seven Different Sources
The Role of Microorganisms in Corrosion

Morphology

Chemical and Biochemical Analysis of Pigmentation of Wild Type and Mutant Serratia marcescens
Detection of Non-pigmented Strains of Chromobacterium violaceum
Isolation of Extrachromosomal Deoxyribonucleic Acids From Thermophilic Bacteria
Determination of the Total Cellular Volume and the Volume of Inner Membrane Vesicles of Escherichia coli
Morphogenesis in Myxococcus xanthus
The Mapping of a Gene in Salmonella typhimurium
Biochemical-Genetics of the Phenazine Pigments in Pseudomonas aeruginosa
Analysis of Supernatant From a Continuous Culture of Pseudomonas aeruginosa
Transformation, Dissociation and Control of Colonial Patterns in B. cereus

Permeability Studies on the Mucopolysaccharide Coat of *Escherichia coli*
The Maintenance of Plasmids in *Bacillus subtilis*
Light Intensity of the Luminous Bacteria, *Achromobacter fisheri*
Some Chemical and Biological Aspects of the Bacterial Pigment Prodigiosin
Microbial Fluorescence
Is Luminescence of any Selective Advantage in *Photobacterium fisheri*?

Physiology

Nutrition and Growth

Carbon-Limited and Nitrogen-Limited Growth of a *Pseudomonas aeruginosa* Strain
Relationship Between the Concentration of Dissolved Oxygen and Aerobic Bacterial Growth
Environmental Effects on the Growth and Development of *Vibrio fischeri*
Comparison of Antibiotics and Aloe Vera on Bacterial Growth
Pseudomonas: Growth and Inhibitory Study
Study of Dihydroerytheromycin's Potency in Inhibiting Growth of Bacteria
Effect of Temperature on the Growth of Bioluminescent Bacteria
Growth Inhibitory Effects of Several Phthalanalides on *Escherichia coli*
Growth Kinetics and Biosynthetic Adaptability of Two Photosynthetic Bacteria, *Rhodospirillum rubrum* and *Rhodopseudomonas spheroides*

Metabolism

Acetyl CoA: A Coordinator of Aerobic/Anaerobic Metabolism in Arthrobacter
Properties and Characteristics of Folate Binding Proteins Found in the Folate Dependent Bacteria
Transport of Amino Acid Amides and Dipeptide Amides in *Escherichia coli*
Metabolism of NADH Dehydrogenase in Inner Membranes of *E. coli*
Effects of Gamma Rays on the Rate of Reaction of Bacterial Amylase
Study of Sugar Transport in an Alkalinophilic Bacterium
Characterization of Tn5 Transposition Events in *Escherichia coli*
Isolation and Purification of an Enzyme Exuded by a Bacteria That is Capable of Lysing Blue-Green Algae
Proteolytic Activity of *Pseudomonas aeruginosa*
Biological Studies of N_2 Fixing and Antibiotic Producing Microorganisms on Plants
Microbial Enzymes That Produce Rancidity in Selected Fats and Oils
Oxidations of Steroids by Intact Bacterial Cells

Environmental Factors

Effects of Sodium Phytate on Cariogenic *Streptococcus mutans*
Effect of Temperature on Microbial Population Growth
Effect of Polyamines on the Growth of *Escherichia coli* Under Stress Conditions
Effects of Ultraviolet Radiation and DNA Transformation Upon the Sodium Requirement of Marine Pseudomonas
Modification of Phototactic Responses of the *E. gracilis*
Effects of Red Dye #2 on *Salmonella typhimurium*
Effects of Radiation and Conjugal Systems on *Escherichia coli*
Chlortetracycline and Its Effects on the Thermal Death Values of Bacteria
Chemical Modification of the Fatty Acid Oxidation Complex in *Escherichia coli*
Effects of 1011 Megahertz Microwave Radiation on Bacterial Systems
Inhibitory Effect of Garlic Extracts on Two Food Poisoning Microorganisms
The Effect of Cleansing Agents on *Staphylococcus epidermidis*
Effects of Ultraviolet Light on Tr2 and *Escherichia coli* B.
Effects of Ultraviolet Light on the Bacteria *Serratia marcescens* D1
Effect of Incremental Applications of Four Antibiotics on the Survival Rate of Four Different Strains of Bacteria
Effect of Antioxidants on Irradiated Bacteria
Effect of Ultraviolet Induced Pigment Mutations and Photoreactivation on the Ultraviolet Resistance of *Serratia marcescens*
Effect of Ultraviolet Radiation and Heat Exposure on the Rate and Efficiency of Bacterial Transformation
Nigericin-Induced Death of an Acidophilic Bacterium
Lectin-Induced Aggregation of *Actinomyces naeslundii*
Effects of Cortisone Acetate and Its Derivatives on *Escherichia coli*
Comparative Effects of Anesthetics on the Luminescence of *Photobacterium fischeri*
Role of Cyclic AMP in Glucose Repression of B-D-Galactosidase Synthesis in Bacteria
Temperature and Radio-Frequency Effects on Bacterial Alpha-Amylase: Kinetic Studies
Comparison of the Effects of Antiseptics on Aerobic Spore Forming and Non-spore Forming Bacteria
Effect of Electrical Charging on the Response of *Escherichia coli* to Glucose
Effect of Various Gases on the Luminescence of *Vibrio fischeri*
Effects of Competition and Chemically Induced Environmental Change on Soil Bacteria Growth
Effect of a Saline Suspension Medium on the Ability of *Micrococcus* and *Serratia* Bacteria to Survive Cobalt-60 Radiation
Energization of Bacterial Motility in Alkaline Environment
Effects of pH on the Mercuric Chloride Methylating Ability of *Bacillus megaterium*
Effects of Malathion on the Ammonia Production of *Azotobacter vinelandii*

Determination of the Correlation Existing Between Ozone's Attenuation of Ultraviolet Radiation (254 Nanometers) and the Death Rate of *Bacillus cereus*
Photoreactivation in Bacteria *Escherichia coli* Following Ultraviolet Radiation Induced Dimer Formation
Herbicides' Effect on *R. japonicum*
Observed Chemotaxis in *Vibrio cholerae*
Environmental Effects on Bacteria
Sterilization of Milk by Ultraviolet Light
Experiment to Determine the Effects of Artificially Induced Chemical Changes on Numbers of Bacilli and Cocci in Cow's Milk
Effects of Coffee on the Bacterium *Bacillus cereus*
Response of Selected Bacteria to Diurnal Freezing and Thawing
Effects of Cyanide and Urethan on Bacterial Luminescence
Inhibitory Effects of Sagebrush on Bacteria
Effects of X-Rays Upon Bacteria
Bacteria Protection From Radiation
Effect of Radiation on the Amino Acids of Bacteria
Effects of X-Ray Radiation on the Bacteria *Serratia marcescens*
Effect of Sublethal Doses of Ultraviolet Radiation Upon the Sensitivity of Nonpathogenic Bacteria to Antibiotics
Mutagenic Effects of Ultraviolet Radiation on a Strain of *Bacillus subtilis*
The Oligodynamic Effect of Heavy Metals on Bacteria
Photoassimilation in *Rhodopseudomonas palustris*
Straphylococcus: Can it be Controlled?
Dissociation of Staphylococcus Bacteria in Tetracycline Environment
E. coli Aberration Resulting From Carcinogenic Chemical Exposure

Antibiosis

Resistance of *Escherichia coli* to Chlorination
Experimental Development of Streptomycin Resistant Mutants of *Staphylococcus aureus*
Bacterial Conjugation: A Means of Transferring Antibiotic Resistance
Transferable Drug Resistance in Coliform Bacteria Isolated From Chickens Fed Antibiotics
Increase in Resistance to Ultraviolet Radiation in *Escherichia coli* and *Bacillus subtilis*
Elucidation of the Basis of the Resistance of *Pseudomonas putida* to Penicillin
Antibiotic Resistant Strains of *Staphylococcus aureus*
Relationship of Bacteriogenetics to Antibiotic Resistance
Transferable Bacterial Resistance: Present and Potential Problem
Development of Lysozyme-Resistant Mutant, *Bacillus megaterium*
Induced Mutations as Applied to Bacterial Antibiosis
Potential of Penicillin Resistant Lactobacilli as Permanent Digestive Flora

MICROBIAL ECOLOGY

Discovery and Isolations of Antibiotic-Producing Microorganisms From Samples of Soil and Ginseng
Presence and Corrosive Effects of Sulfate Reducing Bacteria in the Gulf of Alaska
Purple Sulfide Bacteria in the Great Salt Lake, Utah
The Detection and Confirmation of Histamine-Producing Bacteria in Fish
Photosynthetic Marine Bacteria as a Nutrient Source
Freshwater Microbial Degradation of Oil
Ecological Significance of Enterococcal Bacteriocines
Ecological Study of Bacterial Populations
Some Aspects of Marine Microbiology
Influence of Gravity on Microorganisms
Determining the Population of Bacteria in the Rhizospheres of Banana Roots
Bacteria in Milk
Azotobacter: Soil Bacterium

MICROBIOLOGICAL CHEMISTRY

Regulation of Cytochrome Levels in Alkalophillic Bacteria
Role and Origin of Fluorescent Pigments Produced by Iron-Deficient Azotobacter
Cloning Hemin and NAD Independence in *Heamophilus influenzae*
Different Groups of Streptococci and Their Beta-Hemolytic Actions on Different Blood Agars
Aurovertin Production and Activity in Microbiological Systems
Bacterial Production of Cytokinin
Study of the Luminescent System of *Photobacterium fischeri*
Deoxyribonucleic Acid Transformation of Beta-Hemolytic Streptococci Groups and DNA Analysis

MICROORGANISMS OF FERMENTATION

Biological Rhythms of Yeast in a Controlled Environment
Rate of Anaerobic Glycolysis of Yeast as a Function of Glucose Concentration
Interdependence Within the Cell Cycle of Yeast
Effect of Caffeine on the Fermentation Rate of Yeast
Role of Carnitine Acetyltransferase in the Metabolism of Yeast, *Torulopsis bovina*
Production of Invertase in Yeast
Molecular and Cellular Events During the Yeast-to-Mycellium Conversion in *Candida albicans*
The Effect of Vitamin C on Baker's Yeast
Effects of Pesticides on Lactose Fermentation by *Escherichia coli*
Kinetic Characteristics and Binding Site Studies on the Monomeric Form of Yeast Enolase
Cyclic AMP: Inhibition of Yeast Cell Growth

Anaerobic Breakdown of Sugars in *Saccharomyces cerevisiae* and *Saccharomyces ellipsoideus*
Effects of Magnesium, Sulfate, Ferrous Sulfate and Citric Acid on the Fermentation of Egg Whites by *Aerobacter aerogenes*
Effect of a Reversal of the Magnetic Field and Ultraviolet Radiation on Yeast
Effects of Radiation on the Life Processes of Yeast
The Effect of pH on the Growth of Yeasts, Molds and Bacteria

MICROORGANISMS IN THE ANIMAL BODY

Production of Mutagenic Substances From Bile Salts by Intestinal Bacteria and Its Correlation With Dietary Fiber and Colon Cancer
Inner-Chicken Warfare: The Fight Between Antibiotics and Bacteria
Isolation of Cellulolytic Bacteria of the Rumen
Chemical Antimetabolites in Bacteriological Urinalysis
Occurrence of Lactobacillus in the Saliva

IMMUNOLOGY

Alpha$_2$-Macroglobulin: An Immunoregulator
Immunological Reactions Associated With CO Exposure and Vitamin C Enhancement
Immunochemistry of Rat Androgen Binding Protein
In vitro Immunization of Spleen Cells and the Immunological Roles of Satellite DNA and Interferon
Immunologic Studies of a Cariogenic Streptococcus: *Streptococcus mutans*
Ionizing Radiation + Environmental Immunosuppressants = Fatal Hybrid Formula
In vivo Discovery and Immunogenic Description of an Invertebrate Immunity System
Effects of Carcinogens on the Complement Fixation Reaction of the Immune Response
Role of Complement *in vitro* Secondary Immune Responses
Immunochemical Studies on the Sera of *Ascidia niger*
Chemistry of Biological Immunity
Practical Immunization Based Upon Fundamental Research
Effects of Metallic Ions in Immune Hemolysis
Application of Agar Gel Dehydration to Immunodiffusion Testing
Comparison of Proteins of Different Animal Species Through Immune Diffusion
Antihistaminic and Radiological Depressant Factors in Immunology
Development of the Immune Response

Immune Structures

Gel Separation of Peripheral Blood Lymphocytes
Development of Electrophoretic Techniques for the Study of Lymphocyte Membrane Proteins
Differentiation Between Leukemic and Nonleukemic Lymphocytes
Anti-Type II Collagen Serum as a Chemotactic Agent for Macrophages and Fibroblasts
Effects of Chalones on the Morphology of Transformed Lymphocytes
Level of B and T Lymphocytes in Patients Undergoing Various Cancer Treatment Modialities
Differentiation of Human Normal Lymphocytes and Human Cultured Lymphocytes by Limulus Serum Agglutination
Lymphoblast Transformation and Cyclic AMP Levels in Intact Human Lymphocytes
Detection of Sister-Chromatid Exchange Within Murine Lymphocytes
The Role of Cell Surface Oligosaccharides in Macrophage-Tumor Interactions
An Investigation of the Effect of Macrophages on DNA Synthesis by EMT-6 Tumor Cells
Effects of Tumor Cell Inoculation on the *in vivo* and *in vitro* Generation of Cytotoxic T. Lymphocytes
Effect of Activated Macrophages on DNA Synthesis by EMT-6 Tumor Cells
Inhibitory Effect of Exogenous Interleukin 2 on the Generation of Macrophage Activating Factor in Primary Lymphocyte Cultures
Effect of Differing Concentrations of Hydrocortisone in Lymphocyte Response *in vitro*
Cell-Surface Neoantigens of Stimulated Lymphocytes
Effect of Interferon on the Oxygen-Dependent Microbicidal Activity of the Macrophage
Membrane Immunoglobulin Receptors on Bovine B Lymphocytes in the Peripheral Blood
Cell Cycle Analysis of UV-Exposed Human Lymphocytes
Production of Ultraviolet and Gamma Ray Products in Human Lymphocytes by Sunlight Irradiation
Incidence of Lymphocyte Antigens

Antigens

Purification and Molecular Characterization of VM Antigen
Preparation of Tumor Specific Antigen Vaccine for Immunotherapy of Carcinoma of the Lung
Localization of Factor VIII Antigen on Cow Pulmonary Endothelial Cells
Antigenic Relationships Among Selected Strains of the Tobacco Mosaic Virus Group
Saliva Antigen Reactions
Species and Organ Specificity of Hepatitis B Surface Antigen Binding
Purification and Isolation of the S_1 Antigen
Immunofluorescence Assay and the S_1 Sarcoma Cell Antigen
Antigen Distribution on *Acanthamoeba culbertsoni* Plasma Membrane
Detection of Antigen in Immune Complexes by *Staphylococcus* Immune Complex Electron Microscopy (STICEM)
Isolation and Characterization of the Soluble Cytoplasmic Antigen RO in Order to Screen Patients With Symptoms of Systemic Lupus Erythematosus

Antigenic Composition of Strains of *Actinomyces viscosus*
Structural Basis for the Immunological Relationship Between Simian Virus 40 and JC Virus T Antigens
Antigenicity of a Mutant Strain of *Aerobacter aerogenes* Produced by the Application of Centrifugal Force
Determination of the Order of Precedence of the Antigens in *Paramecia aurelia*

Antibodies. Immunoglobulins

Role of Antibodies and Interferon in an Experimental Disease Model
Comparative Physical Properties of Immunoglobulins From Normal and Neoplastic Human Sera
Development of Assays for the Detection of Brain Specific Antibodies
Anti-immunoglobulin A Antibodies in Normal Human Sera: Incidence and Specificity Determinations
Development of an Enzyme-Linked Immunosorbent Assay for the Detection of Anti-Hepatic Triglyceride Lipase Immunoglobulin G
Monoclonal Antibodies Against Human Tumor Cells by Indirect Immunofluorescence
Development of an Assay for the Detection of Idiotypic Antibody
Development and Application of Enzyme-Linked Immunosorbent Assay for the Detection and Quantitative Analysis of Monoclonal Antibody Production
Monoclonal Antibodies Against Human Immunoglobulin G
An Antibody of Myasthenia Gravis
Related Antibodies in the Blood Serum to the Presence or Recurrence of a Sarcoma
The Development of Monoclonal Antibodies to *Clostridium botulinum*
Detection and Role of Anti-lymphocyte Antibodies in Cancer Sera
Naegleria fowleris: Inhibition Through Anti-amoebic Antibodies and *in vivo* Susceptibility to Four Antiprotozoal Agents
Monoclonal Antibodies Specific for the N-*myc* Oncogene Product
Epidemiologic Study of Antibodies Against Rabies Vaccine in Dogs by Enzyme-Linked Immunosorbent Assay
Detection of IgG Antibodies to Coccidioidomycosis by an Enzyme-Linked Immunosorbent Assay (ELISA)
Fluorescent Antibody Technique With Feline Infectious Peritonitus
Biological and Immunochemical Determination of Herpes Simplex Virus Antibodies
Passive Hemagglutination Procedure for Detecting Cytomegalovirus Antibodies
Seroepidemiological Survey of the Prevalence and Distribution of Antibodies in the Epstein-Barr Virus
Use of the Ouchterlony Technique for the Determination of Type-Specific Antibodies in the Sera of Rheumatic Patients
A Concept of Antibody Production
Synthesis of Antibody *in vitro*
Fluorescent Treponemal Antibody Test
Correlation Between Gamma Globulin Levels and Antibody Production

Antigen-Antibody Reactions

Effects of pH and Lipid Concentration on an *in vitro* Antibody-Antigen Interaction
Receptor-Mediated Phagocytosis in Cell Line Culture
Isolation of Immunoproteins: A Quantitative Analysis of Bacterial Agglutination Studies

PATHOGENIC MICROORGANISMS

Effect of Leptospirae in Cell Culture *in vitro*
An Etiological Dissertation on Pathogenic Mycobacteria
Are The Atypical Mycobacteria Implicated in Pulmonary, Extrapulmonary or Other Disease?

PATHOGENIC FUNGI

Formation, Function and Composition of Capsules in Opportunistic Pathogenic Fungi

MICROORGANISMS OF MICROORGANISMS

Bacteriophages

Isolation and Physical Characteristics of T-even Bacteriophage
Induction of Temperate Bacteriophage from Cariogenic Bacteria
Infective Pathway of Bacteriophage T4
Infection Mechanisms of fd Bacteriophage: Beta Protein Identification
Isolation of Amber Mutants of Bacteriophage PM2
Bacterial "Jumping Genes": Do IS Elements Have Preferred Sites in Lambda Bacteriophage?
Growth of Bacteriophage in the Presence of Various Plasmids
In vitro Mutagenesis of f_1 Bacteriophage DNA
Mysteries of Bacteriophages
Cofactors in T2 Phage Lysis
Study of Bacteriophage T_3 *in vitro* and *in vivo*
Transduction by Bacteriophage P1
Phage Site Competition in *B. subtilis*
Effects of Puffball Extracts on Bacteriophage
Autonomous Production of Bacteriophage in a Substrain of *Azotobacter vinelandii*
Alteration of Host Specificity of Bacteriophage DNA
Comparative Study of Ultraviolet Photobiology of an RNA and DNA Phage
Development of Resistance to Bacteriophage in *Escherichia coli*
Effects of Halogen Compounds and X-Rays on T2r Bacteriophage
Determining Role of Cell Wall in Growth and Adsorption of Bacteriophages
Mapping Study of Genetic Mutation Sites of the rII Region in Bacteriophage T2
Interactions Between the Prophage and Episomic Phage in Lysogenic Bacteria

MICROORGANISMS OF PLANTS

Studies of the Bacteria of the Rhizosphere of Sugar Beets
A Study of *Agrobacterium tumefaciens'* Transfer

MYCOPLASMAS

Studies on the Synthesis of RNA in *Mycoplasma laidlawii* B

VIROLOGY

Characteristics of Several Techniques for Detecting Viruses
Investigative Studies on Mengo Virus Properties
The Hematology of a Virus Infection
Investigating the Survival of Herpes Simplex Virus Type I Irradiated With Short-Wave Ultraviolet Light
Interferon-alpha Receptors and Cellular Antiviral (VSV) Response
Study of a Virus
The Virus: Crystalline Life
Search for a Preventative for Tabacco Mosaic Virus
Value of Fluorescent Straining in Determining Nucleic Acid Content of Virus-Infected Cells
Photoreactivation of Newcastle Disease Virus
Effect of X-Irradiation on the Titration of Influenza Virus

Virus Structure

Identification of the Structural Proteins of Sindbis Virus
Investigations Into the Presence of DNA Lesions in Reconstituted Viruses
Morphology of Sindbis Virus in Persistently Infected *Aedes albopictus* Cells in Culture
Some Characteristics of Multiple RNA Components Isolated From Tobacco Mosaic Virus
Acquisition of Genetic Elements in Procaryotic Cells: The Role of Transducing Viruses
DNA Mechanisms in Viral Infections
Reconstitution of TMV Protein With TRSV RNA to Form Active Pseudoviruses

Virus Function

Hemolytic Activity of "Slow" Viruses
Unusual Heat Stability of Naturally Occurring Virus Inhibitor
Interferon Mediated Inhibition of Virus Replication
Establishing a Cell Transformation Assay for Herpes Simplex Virus DNA
Isolation of a Virus Mutant Detective in the Control of Cell Lysis
In vitro Inhibition of Dengue Virus Replication by Didemnin B
Findings on Simultaneous Production by Cells of an Anti-Viral Agent and a Halo-Producing Factor in Response to Inactivated Viruses

Effect of Environment

Effects of Several Reverse Transcriptase Inhibitors on the Growth of Tobacco Mosaic Virus
Inhibition of Tobacco Mosaic Virus by Modified Purine and Pyrimidine Analogues
Inhibition of Tobacco Mosaic Virus With Milk
Search for a Preventive for Tobacco Mosaic Virus
Antiviral Agent (AVA) Produced Against Tobacco Mosaic Virus (TMV) by Animal Host

MEDICINE (GENERAL) — R

BIOMEDICAL ENGINEERING. ELECTRONICS. INSTRUMENTATION

Improved Design, Construction and Application of Cascade Linear Accelerators in Biomedical Research
Biomedical Engineering
Biomedical Telemetry-Locating Site of Gastro-Intestinal Bleeding
Synchronous Auxiliary Ventricle
Human Artificial Heart Machine
Piezoelectric Pacemaker
Computer-Aided Diagnosis
Uses of Paper Chromatography in Medicine
Technique of Extra Corporeal Circulation

PUBLIC ASPECTS OF MEDICINE — RA

PUBLIC HEALTH. HYGIENE. PREVENTIVE MEDICINE

Environmental Health

Electrochemical Sensors for Pollutant and Biochemical Analysis
Levels of Chromium Pollution in the Upper Narragansett Bay and Accumulation Found in *Mercenaria mercenaria*
Fluoridation
A New Light on Fluoride
Beware! Strontium^{90} Everywhere
Study of Particulate Matter in the Air
Estimating Concentration of Air Pollutants
Carbon Monoxide Detector
Perplexity in Indicators for Carbon Dioxide
Search for Living Air Pollutants
Overcoming Automobile Pollution: Hydrogen Fuel
Quantitative Method of Determination of Titanium Dioxide in the Air
Comparative Study of Air Pollution Levels in Five Areas of Texarkana, Arkansas
Air Pollution Properties in Liquid Petroleums by Spectrum Analysis

Transmission of Disease

Aedes triseriatus: Vector in California *Encephalitis*
Sanitary Water Fountain
Animals and Diseases They Transmit
Menace and Control of Rats in the City
Correlation of Desert Fleas and Plague Spread of Disease by Airplane Travel

Food and Food Supply in Relation to Public Health

Fallout: Beta Radiation in Milk

Other Subjects of Public Health

Some Physiological and Psychological Effects of Noise
Traffic Noise in the Future
Possible Deafness From Everyday Noise

Epidemics. Epidemiology

Hagerstrand Simulation Model and the Control of Epidemics

FORENSIC MEDICINE

Two-Year Study of Computerized Differential Identification Through Dental Configurations

TOXICOLOGY

Detoxification of Poison Ivy Urushiol
Dentine Lead Levels and Hyperkinetic Classroom Behavior
Comparative Analysis of Hematoxic Poisons
Study of Copperhead Venom
Antagonistic Effect of Snake Venoms on Staphylococcal Infections

PATHOLOGY — RB

CLINICAL PATHOLOGY. LABORATORY TECHNIQUE

In vitro Sensitivity Assay of Chemotherapeutic Agents on Cancer Cells
Tropomyosin and Alpha-Actinin in Metastatic Cell Variants
Hormone Receptor Site Interactions of Malignant and Nonmalignant Tissue Cultures
Induction of Differentiation and Maturation of Tumor Cells in Tissue Culture
Abnormal Enzyme Activities in Malignant Mouse Tissues *in vitro*
Effect of Radiation on Abnormal Chromosomes Present in Cell Lines From Rhesus Monkey and Human Cancer Tissues
The Biopsy: A Histopathological Technique
Research on Blood Preservative From the Pond Leech
A Hematological Study of Certain Mammals, Limited to Complete Blood Counts
Relation Between Blood Serum Proteins and Diseases
Purification of Urine With Ion Exchange Resins
Biomedical Aspects of Urine Analysis
Detecting Glucose Molecules in the Urine by Means of Carbon-14

MANIFESTATION OF DISEASE

Relationship Between Ischemia in Skin and Associated Sodium and Lactate Concentration in Sweat
Use of Vasodilators in Treatment of Hemorrhagic Shock

INTERNAL MEDICINE — RC

PSYCHOSOMATIC MEDICINE

Factors Influencing the Development of Psychosomatic Disturbances

EXAMINATION. DIAGNOSIS

Reconstruction Techniques in Computer-Assisted Tomography
Alpha, Beta and Gamma Globulins to Detect Disease
A Crystallographic Method of Disease Diagnosis
An Experimental Cardioscope
Application of Latex Particles to Identify Influenza

Radiography. Roentgenography

Gamma Radiography
Automatic Location of Points From Stereoradiographs
Establishig the Value of Autoradiographic Techniques Using Chromic Radio-Phosphate in the Diagnosis of Malignancies
Techniques of Autoradiography

MEDICAL EMERGENCIES. CRITICAL CARE. INTENSIVE CARE

A Study of Heatstroke and Its Effects on Blood Chemistry

DISEASES DUE TO PHYSICAL AND CHEMICAL AGENTS

Prophylactic and Therapeutic Properties of Dimethyl Sulfoxide in Frostbite
A Preventive and a Treatment of Frostbite

INFECTIOUS AND PARASITIC DISEASES

The Effects of Interferon on *Trypanosoma rhodesiense* Infections
Characterization of Monoclonal Antibodies to Colorado Tick Fever Virus

NEOPLASMS. TUMORS. ONCOLOGY

Activity of Antineoplastic, 70423, in the Human Stem Cell System
Biochemical Differentiation of Malignant and Nonmalignant Hepatic Diseases by Use of Enzymic Ratios
Study of Human Pancreatic Adenocarcinoma Cell Lines
Cell Processes Involved in the Inhibition of KB Cancer Cells by Asparagus Extract
In vitro Translation of Normal and Cancerous Cell mRNA

Unspecified Neoplasms

Tumor Inhibition by Hydrocortisone
Glutaminase Content in Tumor Cells
In Search of the Tumor Inducing Principle
Tumor Development

Model of Neoplastic Growth and Treatment Based on Cellular and Pharmaco-Kinetics
Effects of a Tumor Necrosis Factor on L-929 Cells Through Time-Lapse Cinemicrophotography
Hormone Dependent Tumors: Possible Enzyme Therapy
Inhibition of Tumor Cell Growth by Endogenous Substances From Normal Human Cells
Plasminogen Activator in Mouse Tumors and Normal Organs
Lymphocytic Tumor Inhibition

Cancer and Other Malignant Neoplasms

Cancer and Protein Deficiency in Human Serum
The Synthesis of Anticancer Drugs From Platinum Complexes
The Effects of DMSO on Murine Sarcoma Cells
Effect of Nuclear Protein and DNA Methylation on Gene Expression Cancer Cells
The Effects of Chitosan on Human Colon Cancer Cells
Monoclonal Antibodies: Biological Implications in the Study of Cancer
Cancer Detection Utilizing Corona Discharge Photography
Effect of Toxin, Holothurin, on Lymphoma Cells
Isolation of Factor Responsible for Glial Tumor Initiation in Neurofibromatosis
Amounts of Serum Magnesium Present in Patients With a Malignancy
Detection of Cancer by Electron Spin Resonance Using Superconductivity
Establishment of an Electrophoretic Pattern of Lactate Dehydrogenase Isoenzymes to Aid in the Detection of Carcinoma
An Original Approach to the Detection of Cancer Immunity
Polymorphous DNA Molecules Adapted to Experiments on the Cause, Annihilation and Prevention of Malignancies
Biochemical Analysis of Carcinoma and Sarcoma in the Human Species

Carcinogenesis

Determination of Carcinogenicity of Metal Compounds
A Study of Carcinogenic Properties of Saccharin Through Sister Chromatid Exchanges
Identifying Potential Environmental Carcinogens Using a Mutant Strain of *Escherichia coli*
Detection of Potential Chemical Carcinogens Through Mutation of *Salmonella typhimurium*
Unexpected Effects of Ultraviolet Radiation, a Major Environmental Carcinogen on Human Cancer Cells
Interrelationships Between Dietary Fatty Acids and Prostaglandin E_2 Synthesis: A Pathway to Mammary Tumor Growth
Mutagens Are Carcinogens: Potential Carcinogenicity of the 3-Hydroxyflavones
Carcinogenic Effects of Sodium Nitrate
Carcinogenesis in Chick Cells
Is Emotional Stress a Carcinogen?
Air, Environment and Food: The Valve of Cancer

Therapeutics

Interferon Treatment of a Model Tumor: Application to Chemotherapeutic Synergisms
Chemometabolic Program Including Laetrile, Vitamin A, Retenzyme and Selenium as Anticancer Agents on Cancer *in vitro*
Synthesis and Biological Evaluation of Retinoic Acid Derivatives for Chemoprevention of Cancer
Radioactive Uridine Inhibits Murine Myeloma Cell Division
Effects of Anamu (*Petiveria alliacea*) in the Treatment of Cancer
The Effect of a Cancer Chemotherapeutic Agent, 5-Fluorouracil, on *Escherichia coli*
Combined Chemotherapy and Immunology in Cancer Control
Morphological and Chemotherapeutic Studies With *Plasmodium berghei*
Cancer Chemotherapy
Sensitivity Tests for the Effective Use of Cancer Chemotherapeutic Agents
Serology and Immunology in the Control of Cancer
Demonstration of Statistical Evaluation of Treatment by Survival Rates for Cancer Patients

NEUROLOGY AND PSYCHIATRY. NEUROPSYCHIATRY

Neurology. Diseases of the Nervous System

Optoelectric Method for Mass Detection of the Latency Characteristics of Multiple Sclerosis
Eliminating Stuttering by Suppressing Spurious Sidetone
Humoral and Cellular Immunological Behavior of Multiple Sclerosis
Design, Construction and Use of an Electroencephalograph
Neurology
Electroencephalography
Alpha Percentage Time in the Human Electroencephalogram During the Onset of Sleep

Psychopathology

Creatine Kinase Isoenzyme BB Determination in Schizophrenic Patients Using a More Sensitive Electrophoretic Procedure
Reliability of Data Acquisition in Testing Laterality by Age and in Alzheimer's Disease
Attributional Style as a Predictor of Depression in Adolescents
Schizophrenia in Relation to Youth
Biochemical Approach to Schizophrenia
Study of Psycho-Neurosis Arising From Frustration
Nervous Interactions
Effect of Sleeplessness on Mental and Manual Abilities
Sleep, Sleeping Pills, Psychosis and Suicide

Drug Abuse. Substance Abuse

Smoking and Health
Experimental Effects of Tobacco Smoke Products
Last Gasp for Cigarettes?
Factors Affecting the Rate of Accumulation of Cigarette Tars on the Lungs of a Smoker
Spider Web: An Effective Cigarette Filter

SPECIALTIES OF INTERNAL MEDICINE

Allergy. Hypersensitivity

Allergies
Isolation of Suspected Asthma-Producing Fungi in Home Environment

Nutritional Diseases

Starving on a Full Stomach
Nutrition Versus Malnutrition

Metabolic Diseases

Effects of Androstanolone on Obesity

Diseases of the Blood and Blood-Forming Organs

Transferrin-Receptor-Rich Erythrocytes in Hemolytic Anemias
Immunological Assays for Thrombopoietin
Chromosomal Changes in Chronic Leukemia
Investigating Prednisone's Mechanisms in the Suppression of Autoimmune Hemolytic Anemia
Differential Radiosensitivity of Leukemic T-Cell Lymphoblast Lines *in vitro*
Effect of Fetal Hemoglobin on the Kinetics and Mechanism of the Aggregation of Sickle Hemoglobin
Virus-Induced Leukemia: Ultrastructure of Infected Cell Cultures and *in vitro* Effects of Irradiation on Immunosuppression
Viral-Fused L-Cell and Leukemia Cell Hybrids: Suppression of Malignancy
Protein Biosynthesis in Cryopreserved Glycerol Treated Sickle Cell Reticulocytes
Experimental Analysis of Hemoglobin Disorders
Increased Solubility of Deoxygenated Sickle-Cell Hemoglobin by Limited Succinylation
Effectiveness of Experimental Treatments in Inhibiting and Reversing the Sickling of Erythrocytes Containing Hemoglobin S
Clinical Diagnosis of Hemophilia A
The Story of Leukemia
Bone Marrow Transplantation and Recovery
Finding a Cure for L1210 Leukemia
Regeneration of Bone Marrow Under Severe Stress

Diseases of the Endocrine Glands

Developing a Heat Test for Diabetic Urinalysis
Effect of Glucose on Growth and Luminescence of *Photobacterium fischeri*: A Possible Method for Determining Glucose in Diabetic Urine
Electrophoretic Pattern in Induced Autoimmune Thyroiditis
The Effects of *Equisetum hyemale* on Diabetes Mellitus

Diseases of the Circulatory (Cardiovascular) System

Dynamic Mechanism of Coronary Thrombosis
Arteriosclerosis: A Study of Young Porcine Aortas
Cardiovascular Nuclear Medicine: A Non-Invasive Evaluation of Coronary Artery Disease
Thirst and Hypertension
Net Transfer of Lipids Between Plasma Lipoproteins: A New Biochemical Index for Detecting Human Coronary Artery Disease
Computer Analysis of the Electrocardiogram
Fluorocarbons and Cardiac Arrhythmias: A Possible Mg^{++} Link?
The Rates of Peak Elevation Days of Three Enzymes in Myocardial Infarctions
Pathological and Clinical Significance of Magnesium Depletion Appearing in Cardiovascular Disease
Stress as a Factor in Atherosclerosis
Computer Diagnosis of Congenital Heart Diseases
Can My Fuel Cell Keep Your Heart Beating?
An Intracorporeal Extraventricular Cardiac Prosthesis

Diseases of the Digestive System. Gastroenterology

Gastroenteritis Complex
Altered Peristalsis in Symptomatic Gastroesophageal Reflux
Factors Involved in the Anabolism and Catabolism of Collagen Protein and Relationship to Peptic Ulcer Formation

Diseases of the Genitourinary System. Urology

Calcium Accumulation in a Normal Diet: An Adjunct to Urolithiasis Formation
Ultrastructural Changes of the Renal Corpuscle in Hypertension and Diabetes
Experimental Prevention of Kidney Stones
The Artificial Kidney

Diseases of the Musculoskeletal System

Identification and Control of Rheumatoid Arthritis
Study of Beta-Glucuronidase Enzyme Production Due to Rheumatoid Arthritis and the Anti-inflammatory Effects of Catecholamines
Comparative Study of Muscle Tissue Affected by Two Types of Muscular Dystrophy

Other Diseases

Precipitation Test for Systemic Lupus Erythematosus
Tetrahymena pyriformis: New Model for Ciliary Dysfunction in Man

SURGERY — RD

ANESTHESIOLOGY

Effects of Yohimbine on Local Anesthetic Induced Brain Seizures
Effects of Some Anesthetic Substances Upon Single-Celled Animals
Comparative Evaluations of the Toxicities of Anesthetics
Electrical Anesthesia
Gas Clathrate Stability as an Index to Anesthetic Potency

EMERGENCY SURGERY. WOUNDS AND INJURIES

Oblique Fractures of Bone: A Biomedical Analysis of Compression Plating
In vitro Study of Osteoinduction in the Healing of Bone Fractures
Biomechanics of Catastrophic Football Neck Injuries
Effect of Oxygen on Wound Healing
Snake Bite
Mandibular Condylar Fracture Dislocations

TRANSPLANTATION OF ORGANS. TISSUES

Genetics and Skin Grafting
Viability of Isografts and the Induction of Tolerance in Homografts
Immunologic Considerations in Modification of Radiation Injury by Tissue Transplant
Grafting Human Parts
Suppression of the Rejection Phenomenon in Skin Transplants

SURGERY BY REGION, SYSTEM OR ORGAN

Artificial Heart: A New Concept
An Electro-Magnetic Replacement Heart

OPHTHALMOLOGY — RE

Monocular Depth Perception Driving Aid
The Electronic Eye: Communications With the Blind
Effects of Functional Amblyopia Upon Binocular Vision
Effect of Age on Adaptation Mechanisms in the Human Visual System as Measured by the Visual Evoked Potential
Endothelial Cell Density Following Penetrating Keratoplasty
Effectiveness of a Monocular Colored Filter in Improving Color Discrimination in Color Blind Subjects
Cataracts
A Color Filter to Correct Color Blindness
Induced Color Halos as Seen by Fifteen Color-Blind Persons and Fifteen Controls Tested With Monocular Vertically Bisected Bicolor Stimuli

EXAMINATION. DIAGNOSIS

Evaluation of the Critical Flicker Frequency Theory on the Fovea for an Early Diagnosis of Glaucoma
New Techniques for Detecting Unilateral Visual Disorders and for Measuring Visual Mechanisms
Detection of Ophthalmological and Neurological Dysfunctions by the Visually Evoked Response
Visual Acuity: Its Determination and Modification
Observing the Cornea of the Eye Under Polarized Light
A New Corrector for Astigmatism

GYNECOLOGY AND OBSTETRICS — RG

Hormone Detection of Pregnancy
Oxygen Deficiency in the Perinatal Period
Maternal and Congenital Anomalies Attributable to Parental Vitamin A

PEDIATRICS — RJ

Effects of Varying Audio Stimuli on the Response Time of the Autistic Child
Effects of Fenfluramine on the Communication System of a Non-verbal Autistic Person

DENTISTRY — RK

PREVENTIVE DENTISTRY

Mouthwash and Bacterial Adhesion to Surfaces
Effects of Toothpaste on Oral Bacteria
The Modern Toothbrush
Normal, Diseased and Repaired Teeth
Watch Your Teeth
Oral Microbiology
Tiny Plants in My Mouth

ORAL AND DENTAL ANATOMY AND PHYSIOLOGY

The Effects of Butylatedhydroxytoluene and Sodium Nitrate on the Calcium and Phosphorus Content in the Teeth
Comparative Dental Anatomy
Biochemical Aspects of Dentistry

ORAL AND DENTAL CHEMISTRY

Isolation and Characterization of Specific Inhibitory Proteins From Saliva of a Caries Free Donor
Effects of Various Sugars on the Cohesive Properties of Selected Oral Bacteria
Isolation of Salivary Proteins Which Enhance or Inhibit Growth of Plaque-Forming Oral Streptococci
The Effects of Fluoride Pretreatment on Acid Etching of Caries-Like Lesions of Human Dental Enamel
Effect of Solutions on Teeth
Chemical Reaction on Human Dentition
Influence of Refined Carbohydrates and Dental Plaque on Saliva
Comparative Study of Effects of Fluoride on Teeth
The Effects of Sleeping Pills on Oral Bacteria

ORAL AND DENTAL MEDICINE. PATHOLOGY. DISEASES

Examination. Diagnosis

Chromosomal Aberration Due to Routine Dental X-Rays
Using Ultraviolet Light in Intraoral Diagnosis

Dental Deposits

Investigations in Control of Dental Plaque
Effect of Dextranase and Penicillin on Dental Plaque Grown in vitro
Effects of Various Agents on Dental Plaque Formation
The Artificial Production of Calculus on Teeth

Dental Caries

Metal Plastics in the Prevention of Tooth Decay
Dental Caries
Oral Lactobacillus and Its Relation to Dental Caries
Comparative Study of Muscle Control to Dental Caries
Clinical Analyses and Comparative Studies of Dental Caries
Effect of Different Salivas on Growth of Lactobacilli Cultured From Carious Lesions of Teeth

Diseases of the Supportive Structures of Teeth

The Development of an Efficient Method for Diagnosing Periodontal Disease
Examination of Protease Production Actinomyces viscosus: Possible Role in the Pathogenesis of Periodontal Disease

OPERATIVE DENTISTRY. RESTORATIVE DENTISTRY

The Strength of Dental Amalgams as a Function of Condenser Point Configuration
Effect of Disinfection on the Accuracy of Dental Impression
Corrodibility of Dental Amalgam
Reduction of Corrosion of Dental Amalgam
Methods of Preparing Dental Impression Materials by the Use of Electroplating

ORTHODONTICS

Formation and Repair of Orthodontically Stimulated Root Resorption
Oral Microflora Promoted by Orthodontic Appliances

DERMATOLOGY — RL

Research on Hair
Effects of Dyes on Hair Texture
Effect of Antidiuretic Hormone on Sweating Activity and Sweat Electrolyte Composition

THERAPEUTICS. PHARMACOLOGY — RM

ANTIBIOTIC THERAPY. ANTIBIOTICS

Relationship of Antibiotics to Sensitization to Bee Venom
Differential Effects of Streptomycin on Phage RNA
Bacterial Susceptibility to Antibiotics
Cross-Resistance of Bacteria to Streptomycin and Aureomycin
Production of the Chemotherapeutic Agent, Penicillin, From the Mold Penicillium chrysogenum

DRUGS AND THEIR ACTIONS

Effects of Diuretics
Drugs Versus Spider
Drugs Cause Damage
Effect of Thrombogenic and Antithrombogenic Drugs on the Zeta Potential of Erythrocytes
Effects of Histamine and Antihistamines on Paramecium caudatum
How Aspirin Affects the Body
Depressant Drugs
The Barbiturates
Investigation to Determine the Behavioral Effects of Drugs Upon the Web-Spinning Activities of Araneas sericatus
Drug Effect on Normal Tissue Respiration
A Study of Drug Resistance
Damaging Effects of a Sleep-Inducing Drug
Experimental Investigation of the Effects of Benadryl
Effective Use of Dilantin in Control of Seizures
Discovering Diversity of DMSO
Influence of Selected Vitamins and Metals on Reversing the Growth-Inhibiting Action of Three Antibiotics
Effect of Some Common Drugs on E. coli
Dopamine: A Radioprotective
The Effect of Metallic Ions on the Inhibitory Action of Kanamycin
Evaluating Germicidal and Antiseptic Action
Immunosensitivity of Antileukemic Drug Homoharrigitomine (HHT) on Cell Mediated Immunity
Inhibition of Pheremone Production in Periplaneta americana Through the Use of Antibiotics
Cardiac Effects of Beta-Endorphins
Method by Which Aspirin Stabilizes the Lysosomal Membranes
Inhibiting Effects of D. Actinomycin on Pigmentation
Effects of Chlorpromazine on Cricetidae
Effects of Antibiotics on Morphology and Physiology of Serratia marcescens
Stimulatory and/or Toxic Effects of Antibiotic Meomycin Sulfate on Suspension Cultures of Human RPMI #41 Cells

PHYSICAL MEDICINE. PHYSICAL THERAPY

Radiation and NDV: Suppressors of Polyoma
X-Rays: Preparation and Application in Medicine

PHARMACY AND MATERIA MEDICA — RS

MATERIA MEDICA

Pharmacognosy. Pharmaceutical Substances

Antibiotics From Algae
Medicinal Value of Herbs
Drugs: Their Sources and Principal Uses
Yellowroot: Myth or Medicine?
Crude Drugs: Extracted From Plants and Trees on our Farm
Do Local Seaweeds Possess Antibiotics?
Antibacterial Agents From Mollusks
Antibiotics From the Compost on the Bottom of Fish Tanks
Antibiotics: A Study of Penicillin
Experimenting With Penicillin
Modified Penicillins
Erythromycin Compared to Penicillin
A Search for Antibiotics
Antibiotics - Their Effects - Production From Soil
Antibiotic Effects of Soil Algae
Culturing Antibiotic Producing Organisms From Soil

Pharmaceutical Chemistry

Isolating and Identifying Antibiotics
Synergism Identification of Antibiotic Combinations Using Sensitivity Testing Techniques
A Method for Liquid Chromatography of Barbiturates and Antiepileptic Drugs
Analysis of the Cytogenetic Toxicity of an Anticancer Drug, Neocarzinostatin
Antibiotics From Soil Microorganisms: Isolation, Characterization, and Sensitivity Testing
In vitro Testing of Chemotherapeutic Agents
Purification of an Unknown Antibiotic by Column Chromatography
DMSO: Friend or Foe?
Antibiotics: Isolation, Spectrum and Toxicity
Synergistic Effects of Metals on Antibiotics
Effects of DL-a-Methyl Serine on Eight Antibiotics

AGRICULTURE (GENERAL) — S

FARM ECONOMICS. FARM MANAGEMENT

Scientific Methods of Farming
Good and Bad Farming
Atomic Farming
A Model Farm

AGRICULTURAL CHEMISTRY. AGRICULTURAL CHEMICALS

Toxicity of Common Agricultural Chemicals for Human Lung Cells Grown in Tissue Culture
Effects of Different Trace Metal Ions on Nitrogen Fixing Bacteria

SOILS. SOIL SCIENCE

Analysis and Experiments

Comparison of Soil Types Found in Three Different Plant Communities
Comparative Determination of Radioactivity in Rowan County Soils
Soil Analysis
Measuring Soil Moisture
Soil Analysis Before and After a Flood
Application of Soil Testing
Micro-Fungi in Soils
Effect of Soil Type and Properties on Soil Temperature
Survey of Beta and Gamma Activity of Glynn County Soils

Soil Chemistry

Simultaneous Movement of Terbacil and NaCl Through Soil Columns
Adsorption of a Herbicide by Soils
Sulfur-Lignite Effects on Soils
Reaction Products of Zinc and Phosphorus in Soil Solutions
Chitinase Activity in Soils

METHODS AND SYSTEMS OF CULTURE. CROPPING SYSTEMS

Value of Strip Cropping
Methods and Systems of Culture

DESERTS. ARID LANDS. IRRIGATION

Irrigation With Sea Water
Conservation of Water

SOIL CONSERVATION

An Erosion Study on Pimmit Run
Effect of Soil and Cover Upon Wind Erosion

FERTILIZERS AND IMPROVEMENT OF THE SOIL

The Effect of Providing Micro Nutrients Through Montmorillonite (MMT) on Plant Growth and Development
Seagrass Leaves: An Alternative to Commercial Fertilizers on Coastal Poor Soils in Tropical Islands
Research of Mineral Fertilizers of Plants
Fertilizers, Pollutants, and Plant Embryos
Fertilizers: The Key to Better Crops

PLANT CULTURE — SB

SEEDS

Related Studies in Radiation and the Growth of Seeds
Is Irradiation of Seeds Beneficial to Plant Growth?
Radiation Effects on Dicotyledonous Seeds
Scarification of Seeds by Electrical, Chemical and Mechanical Methods
A Kernel of Wheat
Production of Viable Seeds of the Alpine Tundra
Effects of Electron Bombardment on Seeds in Vacuum Tube
Studies With Natural Plant and Seed Growth Inhibitors

Testing the Degree of Retention of Germination-Readiness and Light Sensitivity of Phytochrome After Drying

PROPAGATION

Effects of Grafting the Fruitless Mutant of Dictyostelium discoideum Onto the Wild Pseudoplasmodium
Budding and Grafting

SOILLESS AGRICULTURE. HYDROPONICS

Saltwater Agriculture
Hydroponics Growing System for Higher Plants for Use in Long Duration Space Missions Under Conditions of Zero Gravity
Soilless Culture of Seedlings
Hydroponics: A Soilless Culture
Hydroponic Growth of Raphanus sativus and Zinnia elegans: Nutrient Deficiency and Varied Thermal Conditions
Hydroponics Old and New
Effects of Gibberellic Acid on Plants Grown by Hydroponics
Cacti: Hydroponics Versus Natural Conditions
Nutriculture

FIELD CROPS

Evidence for the Existence of Allelopathic Agents in Bromus Root Exudates
Oil-Rich Plants as an Energy Source: Euphorbia lathyris and Neochloris oleoabundans
Effects of Magnetism on Field Plants
Latex Rubber From Artocarpus artilis Tree
Cotton Germination and Emergence as Altered by Residual Effects of Growth Regulators

Grain. Cereals

Gibberellin Treatment of Rye secale-cereale Effect on Nutritional Content
Alfalfa: Its Tolerance to Salt
Relationship Between Nitrogen Content and Reflectance Percentages for Corn Plants
Effect of an Induced Pseudo-Symbiotic Relationship of Blue-Green Algae on the Growth of Barley
Effect of Nitrogen Forms and Concentration on Maize Germination and Seedling Development
Effect of Chilling on Zea mays L.
Effects of Mycellia Filter Cake on Corn Plants
Do Sorghum Plants Communicate and Will Their Communication Rate Increase With Age?
The Effect of Seed Size on Wheat: A Quantitative Study
Effects of Gibberellin on Micromorphology of Rye Grass
Developing a Tolerance in Alfalfa, Corn and Soybean Against Salt Water Irrigation
Use of Colchicine for the Induction of Fertility in Great Basin Wild Rye (Elymus cinereus) x Bluebunch Wheatgrass (Agropyron spicatum)
Mutations in German Millet Induced by Gamma Radiation
Effects of Absence of Light on the Growth and Starch Content of Beans and Barley
New Findings on How to Grow Malting Quality Barley
Radiation on Barley
Effects of Various Plant Residues on the Germination and Root Growth of Certain Field Crops
Effects of Row Direction on Sunlight Interception of Corn Plants
Excretion of an Iron Reducing Agent by Corn and Beans
Albino Corn

Forage Crops. Feed Crops. Grasses. Legumes

Effect of Sulfur Dioxide on Soybeans
Can Soybeans Solve the World Food Shortage?
Heavy Metal Atmospheric Particulates - Lead Absorption in Beans
A Possible Growth Inhibitor Produced in Light-Treated Etiolated Soybeans
A Possible Gene Which Prevents Nodule Formation in the Roots of Soybean Plants
Effect of Kinetin on Growth of Soybean Callus Tissue
Insecticide Residues and Pseudomonas: Effects on Soybean Growth and Bacteria
Chemotaxonomic Study of the Family Leguminosae, Using Phytohem-aglutinins
The Enhancement of Glycine max by Controlled Levels of Electromagnetic Radiation
Phaseolus vulgaris and Vigna unguiculata Hybrids and Their Filial Generations
Investigations on the Role of Iron Reductase in Soybean Nodules
Allelopathic Potential of Wild and Cultivated Grasses
Changes in Soluble Carbohydrates in the White Clover Seedling
Effect of Electric and Magnetic Fields on Germination and Seedling Growth of Ryegrass and Garden Beans
Causes of Sterility in an Intergeneric Grass Hybrid
Effect of Nutrient Deficiencies on Soybeans
TIBA: An Increase in Soybean Yield?

VEGETABLES

Immunization of Cucumber Against Colletotrichum lagenarium
The Accumulation of Cd and Pb in Sludge-Fertilized Radishes
Growth of Mung Beans in an Electrostatic Field
Development of Acid Resistant Pea Plant
Inhibition of Germination and Growth of Lettuce by Aqueous Extracts of Various Lichen Species
Chilling Damage in Cultivars of Phaseolus vulgaris L.
Effect of Gamma Radiation on Membrane Permeability and Plant Development of Raphanus sativus in Magnesium Deficient Sand Culture
Relationship Between Fruit Set and Stigma Exsertion in Tomato Plants
Biological Studies of Nitrogen Fixing and Antibiotic Producing Microorganisms on Legume and Non-legume Plants

Effects of Terramycin and Gibberellic Acid on the Growth of Bean Plants
Effects of AC and DC Stimuli on the Growth Rates of Bean Plants
Variables in Tomato Sweetness
Investigation of Tomato Stem and Root Tissue Culture
Influence of Sound Waves on Radish Growth
The Spectrum and the Radish
Comparison of Light-Grown, Dark-Grown and Gibberellin-Treated Dwarf Peas
Effects of Aureomycin on Radish Plants Grown Aseptically
Effect of Alphanaphthalene Acetic Acid and Deficiency of Phosphate and Nitrate on Growth of Bean Plants

FRUIT CULTURE AND ORCHARD CARE

Effect of Fungicides on the Germination of Apple Pollen
An Investigation of the Osage Orange Fruit (Maclura pomifera) as a Source of Proteolytic Enzymes (Pomiferin)
Obtaining By-products From Grapefruit Rinds
Separation and Comparison of Apple Proteins and Enzymes
Inhibitory Effects of Peach Wraps on Rhizopus stolonifer
Inducing Polyploidy in Wild Strawberries
Effects of Radiation on Watermelons

FLOWERS AND FLOWER CULTURE. ORNAMENTAL PLANTS

Preservation of Fresh Flowers
Culture of Chrysanthemums
Gladioli and Gibberellic Acid
Orchids: Their Response to Red Light
Orchids, Colchicine and Polyploidy
Effects of Colchicine Upon Orchid Plant Genetics
A Solar-Heated Greenhouse
The Effects of Erythrocytic Injections on Begonias
Crossing African Violets to Produce New Varieties

GARDENS AND GARDENING

How Science Improves Gardening

LANDSCAPE GARDENING. LANDSCAPE ARCHITECTURE

Principles of Landscaping

PESTS AND DISEASES

Chemical Defense Mechanisms in the Yucca Thripps, Bagnalliella yuccae
Effect of Helminthosporium carbonum on Lignin, Chlorogenic Acid and Phytoalexin Accumulation in Potato Tuber Tissue
Circadian Rhythm of Sensitivity of Bermuda Grass to the Herbicide Roundup
Growth, Abscission, and Auxin Content in Virus Infected Plants
Determination of Possible Differences in Rice Weevils
Auxins and Susceptibility to Disease in Young Plants
Effect of Light on the Spore Production of the Black Apple Rot Fungus
Research in Plant Cancer

Weeds. Parasitic Plants

Water Hyacinths: Effects on Agricultural Pollution, Energy Production and Soil Enrichment
How to Kill Weeds
An Experiment in the Elimination of Crab Grass

Plant Pathology

Electrophoretic Detection of a New Protein in Diseased Plants
Detecting Octopine in Crown Gall Tumors
Dutch Elm Disease: Diagnosis and Environmental Effect
Protoplast Fusion of Sunflower and Sunflower Tumor Tissue
Dysfunction in the American Chestnut Tree (Castanea dentata) Caused by Chestnut Tree Blight
Metabolism in Crown Gall Tumor
Effects of Indoleacetic Acid on the Crown Gall Tumor
The Use of Autofluorescence in Evaluating Mycorrhizal Infections in Sugar Maples
Three Enzyme-Linked Immunosorbent Assays for the Rapid Diagnosis of Plant Viruses
Chemotherapeutic Inhibition of the Crown Gall Tumorogenesis
Enzymatic Modulation and Ethylene Production in Fusiform Rust-Infected Pines
Phenolic Compounds in a Hypersensitive Defense Mechanism in Plants Infected With Tobacco Mosaic Virus
Crown Gall: The Effects of Antibiotics
A Comparative Study of Plant Callus and Crown Gall
Induction of Antiviral Resistance in Bean Plants by Treatment With Trichothecium Polysaccharide and Its Reversal by Actinomycin D
Measurement of Spin-Lattice Relaxation Time for Plant Tumors Using Nuclear Magnetic Resonance Spectroscopy
Inhibition of Bacterial Wilt in Cucumber Plants
Causative Agents of Olive Knot Disease and a Possible Control Technique
Control of Needle Blight on Pines
Oak Wilt: An Investigation in Plant Pathology
Dodder Transmission of Lethal Yellowing Palm Disease
Effect of Cyanine Dye #4 on Growth and Octopine Production in Habituated Crown Gall Tumors of Helanthius annuus
Primary Attraction of Dendroctinus ponderosae to Pinus contorta
The Effect of Varying the Nutritional Regimes on the Growth of Agrobacterium Tumors in Lycopersicon
Crown Gall: A Malignant Growth
Amino Acid Metabolism in the Virus Infected Beta vulgaris

Survival of Crown Gall Bacteria in Biochemically Changed Plant Extracts
Investigation of the Tumor-Inducing Principle in Agrobacterium tumefaciens
Induction of Tumors in Carrots by Agrobacterium tumefaciens
Role of DNA in the Tumor-Producing Activities of the Bacteria Agrobacterium tumefaciens and Agrobacterium rubi

Pest Control and Treatment of Diseases

Chemical Experiments on Plant Parasitic Nematodes
Pheromone: A Solution to Future Pest Control
Control of Insects Through Exocuticle Decomposition
Potential Environmental Effects of the Herbicide 2,4-D and Its Breakdown Product 2,4-Dichlorophenol
Anti-Juvenile Hormones: Insecticides of the Future
Effects of Calcium and Magnesium Deficiency on the Crown Gall Disease
Induced Resistance in Plants
Reduction of Insect Damage and Effect on Crop Yield by Timed Planting and Other Control Methods
Effects of Insecticides on the Genus Rhizobium
Pyridines as Fungicides
Use of Grasshopper's Rejected Foods as Effective Repellants to Control Destructive Grasshoppers
Control of Chestnut Blight
Effects of Controlled Catalase Activity on Plant Malignities
The Use of Attenuated Agrobacterium tumefaciens to Immunize Lycopersicon esculentum Against Crown Gall Diseases
Phytophthora: Mode of Transfer and Possible Control Techniques
Drosophila melanogaster and Their Resistance to Malathion
Flame Photometric Detector and Metabolism of Pesticides
Effects of Aldrin on the Lebistes reticulatus
Effect of Herbicides on Seed Germination and Seedling Growth
The Possibilities of a Fertilizer-Herbicide in a Common Organic Substance
Do Pesticides Used by Farmers Kill Fish?
Obtaining Control of a New Strain of Gray Rot Fungus
Controlling Harmful Insects
Photoflash: Insect Enemy Control Without Chemicals
Importance of Insect Traps
Fire Blight Control
Ionizing Particles of Insecticides
Resistance of House Flies to Various Insecticides
Elimination of Virus Disease in Potatoes With Heat
Possible Plant Cancer Inhibitor by Colchicine
Establishing Plant Immunity as a Tool in the Search for Cancer's Cure
Does the Killing Power of the Herbicide, Diuron, Vary at Different Soil Depths, Light Intensities, and Addition of Surfactants?
Pesticide Residue Research
Synergistic Actions Between Pesticides
Determination of Concentration of Trace Amounts of HC Insecticides by Gas Chromatography
Comparison of the Toxicities of Different Insecticides
Effect of Insecticides on Life Cycles and Chromosomal Patterns of Drosophila

FORESTRY — SD

Cuticular Resistance of Conifers in Relation to Treeline
Landcover Analysis by Data Processing Landsat Satellite
Environmental Factors Which Affect Forest Succession
Comparison of the Rate of Ammonification and Nitrification in Two Forest Ecosystems in Lower Michigan
Biomass Production of Hybrid Poplar Growth on Treated Anthracite Breaker Refuse
Inquiry Into the Factors Affecting the Growth of Forests
Sulfur Content of Pine Needles From Air Pollution
A Study of Land Use in the Watershed Basin of the Proposed Monroe Reservoir and Recommendations Concerning Reforestation
Inside and Outside Our Trees
Forest Waste by Fire
Chemical Analysis of Five Southern Yellow Pines
Seasonal Rainfall and Radial Growth of Shortleaf Pine
Effects of Varying Altitudes on Cellulose Content of Douglas Fir
Model Forestry Project
Forest Regions
The Common Forest Trees
Tree Farm Management
Protection of the Forest
Determination of the Minimal Area of the Lodgepole Forest Near Anaconda

ANIMAL CULTURE — SF

FEEDS AND FEEDING. ANIMAL NUTRITION

Food Nutrients, Examples and Deficiencies

CATTLE. HORSES

Sanitary System of the Dairy Barn
Feeding Dairy Cattle for Increased Butterfat Production
Isolation of Viruses From Healthy Dairy Cattle
Breeds of Horses and Ponies
Rhesus Factor in Horses

LABORATORY ANIMALS

Balanced Diet for White Rats

POULTRY

Breeding Development of the W. L. Red Cornish Bantam

Culturing Chlorella and Its Growth and Histological Effects on Chicks
Scientific Applications for Egg Candling
Algae as a Food for Chickens
Raising and Experimenting With Chickens
Poultry Nutrition
Making a Chicken Lay Two Eggs a Day
Egg Albumen Secretion in the Hen
Amino Acid Nutrition of Chicks
Response of Baby Chicks to Selected Hormones

BEE CULTURE

Can Fungicides Be a Contaminant of Honey?
Isolating an Antimicrobial Ingredient in Honey

VETERINARY MEDICINE

Coat Color and Breed Factors and Their Relationship to the Risk of Benign Skin Melanoma in Dogs
In vitro Research of the Infectious Bovine Rhinotracheitis Virus
Susceptibility of Very Young Chick Embryos to Malathion
Effect of Iron on Pig Hemoglobin
Dog Characteristics
Do Dogs Have Blood Types?
Viral Effects of Specific Bovine Fetus Cells in vitro
Serum Neutralization Tests on Infectious Bovine Rhinotracheitis Virus in vitro
Genetics, Disease Prevention, and Nutrition in Sheep Production
Diagnosing Sheep Disease Problem
A Study of Poultry Diseases
Chicken Coccidiosis: Effect, Control
Production and Testing of Avian Bronchitis Vaccine

AQUACULTURE. FISHERIES. ANGLING — SH

Nitrifying Bacteria as Applied to the Artificial Initiation of the Nitrogen Cycle in a Marine Aquarium
Lead in Edible Hawaiian Seaweeds
Comparative Intertidal Ecosystems
Investigations of Mytilus edulis and Chondrus crispus With Relation to Inorganic Phosphate Exchange and Aquaculture Uses
The Effects of an Isoniazid Para-Aminosalicylic Acid on Mycobacteriosis in Trichogaster trichopterus
Developing a Pearl Culturing Process Concomitant With an Ecological Survey of Clams
Effects of Temperature and Salinity on the Rate of Hatching Artimia salina Eggs
The Effects of Pesticides Used by Farmers of the Maniece Bayou on Fish
Geological Stream Improvement for Fishing
A Scientific Approach to Angling
Tagging of Archosargus probatocephalus in Brevard Waters
Schooling of Fish: Further Experiments With Ichthyopsychology
Are Fish Affected by Various High and Low Frequency Sounds?
All Purpose Farm Pond
Planned Ponds: More Protein, More Pleasure
Danger of Radioactive Contamination of Kelp

HUNTING SPORTS — SK

WILDLIFE MANAGEMENT. GAME PROTECTION

Conservation of Fish and Game
Protection of Beneficial Birds of Prey
Alaskan Wildlife: Prehistoric and Modern
What Are the Factors That Are Essential in Sagegrouse Survival?
Animal Tracks: Wild and Domestic

ENGINEERING (GENERAL) — TA

HUMAN ENGINEERING

Bio-mechanics: Can Engineering and Biology Work Together to Better Mankind?

SYSTEMS ENGINEERING

Research in Systems Engineering

ENGINEERING MATHEMATICS. ENGINEERING ANALYSIS

Multiprocessor Approach to 3-D Simulation
Principles of Nomogram Construction
Nomography in Problem Solving
A Study of Matrices
Graphing in Three Dimensions
Graphing With Four Dimensions
Machine Graphics
An Instantaneous Electronic Grapher
Graphic Analysis of Moire Patterns
Computer Techniques Applied to the Processing of Metallurgical Data to Produce Simplified Graphical Results

MECHANICS OF ENGINEERING. APPLIED MECHANICS

Applied Dynamics

Impact Damper: A Mechanical and Analytical Study

Applied Fluid Mechanics

Fluid Amplifiers: Fluid Logic and Power Control
Fluidics: Design and Application of Fluid State Devices
Manipulator Using a New Design Fluidic Amplifier
Study of Devices That Operate on Fluid Properties
A Fluidic Model
Application of Fluidics to a Digital Adder
Determining the Reaction Chamber Dimensions of a Fluidic Bistable Device
Bistable Fluidics
Fluid Flip Flop
Pure Fluid Circuits

ACOUSTICS IN ENGINEERING. ACOUSTICAL ENGINEERING

Comparison of Ultrasonic Reflectors
Design and Construction of an Ultrasonic Wave Generator

MATERIALS OF ENGINEERING AND CONSTRUCTION

Specific Characteristics of Materials

Thermoanalytic Basis for Selecting Heat Storage Materials
Determining for Properties of Various Rocks Suitable for Use as Building Materials
Friction Reduction Study: Methods Used to Overcome Friction by Varying Types of Motion, Surfaces or Lubricating Agents
Effects of Velocity on Corrosion
Corrosion of Metals
Wear of Metal in Coins
Platinum Decoration Technique in Stress Corrosion of Aluminum-2024
Effects of Static Fatigue on Magnesium Oxide
A Nearly Frictionless Surface
Experiments in Cryogenics: Possible Materials for Use in Low Temperatures of Outer Space
Statistical Analysis of Temperature Variations With Distance
Design and Testing of Structural Materials

Nonmetallic Materials

Dynamic Mechanical Properties of Polystyrene and Polybutyl Methacrylate
Utilization of Solid Residues From Coal Burning Power Plants in Brickmaking
Polyethylene Glycol Compared to Polyvinyl Acetate in Waterlogged Wood Preservation
Effects of Annealing Beneath TG on the Structural and Mechanical Properties of Polyvinyl Chloride
Holographic Interferometry: Determination of Pressure-Mediated Nanometric Deformation as Applied to Reinforced Plastic Configurations
Graphite-Epoxy Composite Replacements for Engine Components
Mechanics of Rubber
Comparison of Concentrations of Elements Leached From Fly Ash by Water and Acids
Lightweight Concrete
Design and Control of Concrete Mixtures

Metals

Analysis of Oxide Coatings on Construction Metals Exposed to Atmospheric Agencies
Influence of Corrosion Inhibitors on the Electrode Potential Field in the Vicinity of Copper Contamination on Aluminum
Effects of Magnesium on Grey Cast Iron
A Characteristic Study on the Corrosion of Iron Nails
Corrosion Inhibition by Amines
Filiform Corrosion of Steel in Alkaline Brines
Corrosion of Copper
The Relationship of Protective Overcoats on Corrosion of Aluminum Substrates
Comparing the Strength of Brazed and Welded Joints
Different Gauges of Steel and Their Uses
Effects of Heat on Stainless Steel and Titanium
Alloy Deposition of Tungsten
Tin: The Metal That Cries
Modification of a Metal Alloy

STRUCTURAL ENGINEERING (GENERAL)

New Method for the Measurement of Shear in Stirred Tanks
Strength of Trusses
A Study of the Load-Bearing Abilities of Columns

APPLIED OPTICS. PHOTONICS

Laser and Laser Applications

A Simple Nitrogen Laser
Applications of Laser Speckle
Current Modulation in the Pulsed Argon-Ion Laser Discharge
Effect of Circuit Inductance on the Transversely Excited Nitrogen Laser
Multiplexing of Laser Beams
Computer Assisted Laser Micrometers
Laser Doppler Velocimetry
Analysis of Laser Speckle Patterns to Determine Surface Roughness
Remote Control With Laser
The Organic-Dye Laser and Its Tuneable Characteristics
Wavelength Selection in the Tuneable Dye Laser
Transversely Excited Atmospheric CO_2 Laser
Gas Laser
Helium-Neon Gas Laser
The CO_2 Laser
Analysis of Light Amplification by Stimulated Emission of Radiation
Homemade Laser
Research and Application of Laser Light
The Laser: Its Uses in the Mechanical and Medical Fields
Lasers: The Light Fantastic
An Operating Laser: Principles and Experiments
Investigation of Parameters in a Solid-State Laser
Laser Action in Fluid Media
Construction of and Experimentation With a Low-Power, Solid-State Laser
Laser Initiated Photochemical Reaction

Applied Holography

Laser Research: Holography and Communications
Holography: Theory, Creation, Application
A High Density Holographic Image Storage and Retrieval System
Experiments in Holography With a Helium-Neon Laser
Holographic Interferometry: (Interference)^2

PLASMA ENGINEERING. APPLIED PLASMA DYNAMICS

Echo Effect: A Method to Measure Collision Frequencies in a Mirror Confined Plasma
Construction of Plasma Acceleration and Confinement Unit
Design and Construction of a Plasma Generator
Plasma Jet: High Temperature Ion Beam
Plasmatron
Device for the Mechanical Separation of High and Low Velocity Molecules in a Gas
Increasing the Efficiency of a Plasma Jet Suitable for Space Propulsion
Experimental Plasma Engine
The Plasma Torch

HYDRAULIC ENGINEERING — TC

An Acoustical Emergency Warning System Utilizing the Water Supply System of a Metropolitan Area
A Model for Simulating Reservoir Behavior
Floating Drydock
Kinds of Locks
Different Canals
Computerized Canal Lock
Design and Use of Collapsible Navigation Dams
The Operation of the Caisson
Damming of Headwaters
Dams Along the Upper Mississippi
Correlation Between River Volume and Channel Shaping

ENVIRONMENTAL TECHNOLOGY. SANITARY ENGINEERING — TD

ENVIRONMENTAL POLLUTION

Effects of Acid Rain on Soil Nutrients
What Are the Effects of Acid Rain? (Computer Simulation)
Corrosive Effects of Air Pollution and Acid Rain on Building Stone
Atmospheric Sulfur Transfer and Deposition in Soil and Rain
Environmental Effects of High Voltage Power Transmission
Lead and Cesium Pollution Measured Colorimetrically in the Annual Growth Rings of Trees
Effects of Phosphates and Nitrates on the Resiliency of the Ecosystem
Acid Rain: A Study of Its Effects on Microorganisms
Synthetic Detergents
Detergents and Photosynthesis
Kinetical Investigation of Detergent Action

WATER SUPPLY FOR DOMESTIC AND INDUSTRIAL PURPOSES

Qualities of Water. Water Quality

Colorimetric Analysis of the Mineralization of Drinking Water of Lakewood, California and Vicinity
Effects of Heavy Industry on the Water Quality of the St. Louis River
Analysis of Softened Water
Investigation of the Lead (II) Nitrate-Potassium Chromate Water System
Development of a Field Kit for the Determination of Water Hardness

Examination and Analysis

Production of Ammonia and Nitrite by the Marine Environment

Sources of Water Supply

Water Evaporation Rate Control
Effect of Hexadecanol Films in Retarding the Evaporation of Water
Model Water-Works
Community Water Supply
County Water System
Water System for Rural Home
Types of Wells on a Farm
Artesian Well and Its Rock Structure

Water Pollution

Marshes and the Water Pollution Problem
Systematic Identification of Organic Pollutants in a Municipal Water System
The Effect of Copper Sulfate Pollution in Water of Varying Hardness on Avoidance Learning in Goldfish
Nitrogen and Phosphorus as Limiting Factors in Eutrophication
Formaldehyde Contamination of Groundwater
Use of Escherichia coli as an Indicator of Polluted Waters and Its Possible Fallibility
Detection of Cesium in Public Water Supplies by Chemical Spot Tests and Neutron Activation Analysis
Basic Relationship Between Increased Tourist Population and Coliform Contamination of the Sources of the Local Water Supply
Water Hyacinths for Water Pollution Reduction and Methane and Protein Production
Chemically Contaminated Ground Water as Detected by Planarian Regeneration
Position of Wells in Relation to Pollution
Water Pollution
Automatic Determination of Heavy Metal Water Pollutants
Significance of Small Stream Pollution

Water Reuse

Electrochemical Utilization of Oilfield Wastewater

Water Purification. Water Treatment and Conditioning

Wastewater Bioclarification
Environmental Safety of a Wastewater Treatment Plant Measured Through Stream Analysis
The Removal of Escherichia coli from Water Using Lemna minor
Removal of Heavy Metal Cations From Industrial Process Wastewaters Using Insoluble Starch Xanthate

An In-Depth Study of Bioconversion Water Purification Systems of the Future Using *Ariemia salina*
Sinking Simulated Crude Oil Spills With Silicone-Coated White Sand
How Water is Purified
Purification of Water and Sewage Disposal
The Design and Construction of a Water Purification System
A Study in Filtration
Rectification Properties of Halide-Ion Contaminated Ice

Saline Water Conversion

The Solar Distillation of Saline Water
Energy From Salinity Gradients: An Analysis of Reverse Vapor Compression Desalination
Utilization of Solar Energy in the Distillation of Sea Water
Fresh Water From Salt Water
A System for Desalination of Sea Water With By-Products Consisting of Electricity and Various Chemicals
Experimental Evaluation of a Reverse Osmosis Desalination Unit
Desalting Water by Magnetic and Static Fields
Demineralization of Sea Water by Hydrate Formation

SPECIAL TYPES OF ENVIRONMENT

Soil Pollution

The Migration of Lead Ions in Soil
Arsenic Content in the Soil From Two Separate Smelting Areas as a Method for Comparing and Relating Effects of Smelter Emissions

Air Pollution and Its Control

An Analysis of Hydrocarbon Catalysis on NOx and Oxidant Atmospheric Pollution
Biological Removal of Carbon Monoxide From the Atmosphere
Elevation of Earth's Temperature Due to CO_2 Pollution and to Positive Feedback Cycles
Effects of Air Pollution on the Transmission of Microwaves
Possible Control Techniques for Industrial Particulate Air Pollutants
Air Purification and Regeneration
The Effects of Volcanic Ash on the Mammalian Respiratory System

NOISE AND ITS CONTROL

Experiments on Supersonic Jet Noise
Semiconductor Device Noise Measurement System

INDUSTRIAL AND FACTORY SANITATION

Industrial and Factory Wastes

Factors Influencing Chromium Floc Removal From Industrial Wastes
Environment Corrosion Parameters in the Containment of Low-Level Nuclear Wastes
Reduction of Nuclear Wastes by Refissioning of Fission Fragments
Effect of Certain Microorganisms on Pulp and Paper Mill Effluent
Detoxification of Asbestos Wastes
A Study of the Environmental Sensitivity of Geologic Materials as a Determinate in Nuclear Waste Storage
Waste of Lumbering
Waste of Woods

HIGHWAY ENGINEERING. ROADS AND PAVEMENTS — TE

Road Surfacing
Safety for New Highways

RAILROAD ENGINEERING AND OPERATION — TF

Evaluation of Lead and Oxygen Free High Conductivity Tracks for Superconducting, Magnetically Levitated Train
Automatic Railroad
Automatic Block Control System for Model Railroad
Construction of a Subway
Principle Behind Locomotive Wheels
Freight Train Air-Brake
Transistor Controlled Model Railroad

BRIDGE ENGINEERING — TG

How a Drawbridge Operates
Working Model of a Bascule Bridge
Lowering and Raising a Bridge by Steam
Single Unit Suspension Bridge Over the Strait of Messina

BUILDING CONSTRUCTION — TH

The Hot Box: A Test of Insulation and Its Application
The Utilization of Seaweed as an Alternative Means of Insulation
Infrared Reflectivity of Roofing Materials in Relation to Heat Absorption
From the Drafting Board to the Finished Product
Construction of a House
Water Traps for the Bathtubs
Protection From Lightning

ARCHITECTURAL ENGINEERING. STRUCTURAL ENGINEERING OF BUILDINGS

First Buckling Load of a Simply Supported Column Braced in a Non-principal Direction
Aerodynamics of Common Building Shapes
Structural Members in Timber Roof Trusses
Trapazoidal Wind-Brace and Its Application to Wood Platform Construction
Hyperboloid High Rise Structure

HEATING AND VENTILATION

Solar Assisted Heat Pump
Improving Fireplace Heat Efficiency

'The Thermal Siphon': A New Approach to Solar Design
Heat Conservation With the Use of Infrared Reflective Coatings in Windows
Effect of Architectural Design on Air Circulation in a Room
Cooling Homes With Solar Heat
Cleaning by Ultrasonics
Principles of Modern Air Conditioning
Steam and Hot Air Heating
Hot Water Heating System
How a Warm Air Furnace Works
Heating by Radiation

PROTECTION FROM FIRE. FIRE PREVENTION AND EXTINCTION

SAFE (Scanning Automatic Fire Extinguisher)
Prevention of a Grain Elevator Explosion by a Suppression System
Protection Against Fire
Chemical Firefighting

MECHANICAL ENGINEERING AND MACHINERY — TJ

The Development of the Machine

MECHANICAL MOVEMENTS

Design Optimizations of Gyroscopic Suspension Systems

MECHANICAL DEVICES AND FIGURES. AUTOMATA. ROBOTS (GENERAL)

Development of a Light-Sensing Robot
SPAR: An Experiment in Robotics and Artificial Intelligence
High Flexibility Robotics
The Seeing Eye Robot
Robotic Vision and Pattern Detection
Computerized Robotics
The Low-Power Surveying Robot
An Inexpensive Robotic Arm
Rotom the Personal Robot
Microcomputer Activated Robot (MAR)
Computer Controlled Robotic Arm
Instantaneous Speed of a Mousetrap
Robots of the Future
Six-Foot Tall Mechanical Robot
The Self-Guiding Automobile-Matic Car
Variable Overlap Camshaft

CONTROL ENGINEERING SYSTEMS. AUTOMATIC MACHINERY

High Speed Timing System
Construction of a Microprocessor-Controlled Robot
Position Sensor for Robots
A Distributed Loop Communications Network Using Single-Chip Microprocessors
Engineering and Construction of a Computerized Robot
Automatic On-Off Timer
Positive and Negative Feedback
Design and Construction of a Robot and Control
Automatically Controlled Sailplane
Programmed Robot

HEAT ENGINES

Design and Optimization of a Nitinol Heat Engine
Construction of a High Frequency Induction Heater

STEAM ENGINES

Mathematical and Experimental Analysis of the Flywheel
The Principle of the First Steam Engine

MISCELLANEOUS MOTORS AND ENGINES

The Modern Carburetor
Resonance Engine
Photon Heated Turbine
The Gas Turbine
Method for Determining Wear Rates in Internal Combustion Engines
Design for a High Performance Two-Cycle Turbo Diesel Engine
Converting Engine Heat and Exhaust Gases Into Methanol Fuel
Electromechanical Valve Actuation in the Reciprocating Internal Combustion Engine
Model of Gasoline Engine Piston
Analysis of Performance and Efficiency of a Small Four-Cycle Gasoline Engine
Experimental Free-Piston Gas Generator

RENEWABLE ENERGY SOURCES

Solar Energy

Dual Chamber Heat Storage Solar Air Panel
Conversion of Solar Energy to Mechanical Energy Utilizing Dichloromethane and Parabolic Reflectors
Solar "C" Collector: A Compound Parabolic Concentrator
A Computer Controlled Parabolic Solar Collector
Development and Evaluation of a Concentrating, Negative Focal Length Solar Collector
All Year Round Solar Collector and Storage Unit
Assessment of Sun-Tracker Versus Stationary Solar Collector System Comparison
A Comparison of the Flat Plate and Focusing Solar Energy Collectors
Operating Characteristics of a Solid State Thermal Engine Powered by Radiant Energy
Construction and Testing of Two Solar Steam Generators
Maximizing Solar Collecting Unit Efficiency by Use of Microprocessor Control
Solar Radiation Concentrator
Thermal Expansion Motor: Using Solar Energy a New Way
Developments for High Performance Hot Air Solar Collector Systems Using Flat Bed and Evacuated Tube Prototypes
Solar Energy Converted Into Rotor Energy

Building a Solar Water Heater
Experiments With a Spital Fin Absorber Tube in an Evacuated Solar Collector
Solar Energy: Practical Applications
The Utilization of Solar Energy
A Solar Motor
Adventures in Solar Energy

Wind Power

A Study to Determine the Most Efficient Airfoil Design for Windmills
A Wagtail Powered Flywheel
A Wind Generator Blade With Endplates
Low Power Wind Turbines
Efficiencies of Savonius Windmill Modifications
Heat From the Wind
The RSAAT: Rigid Sail Actuated Aeroturbine - An Innovation in the Field of Wind Energy
Feasibility of Vertical Axis Windmills
Effect of Blade Geometry and Surface Material on Wind Machine Rotation Speed, Torque and Efficiency
Omnidirectional Windmills
Advanced Low Speed Wind Turbines
Wind Turbine Site Analysis
Development of the Vertical Biaxial Windmill
Determination of the Potential for the Use of a Lifting Airfoil in the Darrieus Vertical Axis Windmill
Principles of a Windmill
The Uses of Wind

HYDRAULIC MACHINERY

Four Types of Water Wheels
Visual Aids to Show Pump Action
Archimedes' Water Screw
Pumping of Oil
Electrostatic Pump
Construction and Use of Water Vacuum Pump
Hydraulic Brake System

PNEUMATIC MACHINERY

Air Controlled Door
Air Pressure Devices

MACHINERY EXCLUSIVE OF PRIME MOVERS

Utilization of Opposing Magnetic Fields as a Floating Point Bearing
Lubricant Analysis

HOISTING AND CONVEYING MACHINERY

An Improved Conveyer System Design and Its Application to Ski-Lifting
Elevator Controller Systems

ELECTRICAL ENGINEERING. ELECTRONICS. NUCLEAR ENGINEERING — TK

ELECTRIC METERS

Scoring Short Answer Tests by Means of an Ohmmeter
Electric Hygrometer
Electrical Determination of pH
Gradient Acceleration Brake Meter
Measuring DC Voltages in the Millivolt Region
An Electronic Audio Frequency Meter
Volt-Ohm Meter
Detection and Measurement of a Phase Shift in Current Through Dilute Aqueous Solutions
New Approach to Measurement of Voltages
Flashing Lights as Remote Line Voltage Indicators
A Rotary Electrometer
Problems in Constructing a Vacuum-Tube Voltmeter

TELEMETER SYSTEMS

Computerized Telemetry Research System
Temperature Telemetry
Remotely Activated Telemetry System
Experiments in VHF Telemetry
Telemetering and Facsimile

PRODUCTION OF ELECTRIC ENERGY OR POWER

Energy From Seawater and Sunlight
Saccharomyces cerrvisiae: Potential Source of Electrical Energy
Does Electrical Energy Come in Packets?
Study of Anaerobic Bacteria for Use in a Low Cost Energy Source
Bioelectricity: Its Use in Powering Miniature Electronic Devices

Production From Heat

Conversion of Atmospheric Heat to Electricity
Power Through Thermoelectronics
Light to Electricity
Electricity From Heat
Research in Thermoelectrics
Experimental Investigation of Thermoelectric Cooling
Use of Electromotive Force in Conversion of Heat to Electricity

Production From Waterpower. Hydroelectric Power Production

The Tidal Pump: A New Source of Power
Pressure Retarded Osmosis in the Ocean as an Alternate Energy Source
Cartesian Diver Hydroelectric Generator
Hydroelectric Power Plant

ELECTRIC APPARATUS AND MATERIALS

Working of Doorbell
Buzzer
Closed Circuits
An Electrical Combination Lock
Doorbell Circuits
Signal Boards
Unseen Burglar Alarm
My Own Public Address System
An Electrical Questioner
Quiz Box

DYNAMOELECTRIC MACHINERY AND AUXILIARIES

Effects of Parametric Variations on the DC Motor
Brushless, Reversible, Variable Speed DC Motor
Hydro-Electrostatic Generator
A Transformer
Problems in Tesla Coil Design
Construction and Theory of an Audio Signal Generator
High Frequency Step-Up Transformers and Modulation Characteristics in Oscillators
Generating Alternating Current
Principles of an Electric Motor
A Solenoid Motor
Operation of a Simple DC Motor
Universal Electric Motor
Construction of an Electrical Wind Generator
Tin Can Motor

PRODUCTION OF ELECTRICITY BY DIRECT ENERGY CONVERSION

Production of Electricity Directly From Chemical Action

The Redox Fuel Cell
Evaluation of Acid, Alkali and Invariant Fuel Cells for Large and Small Scale Power Generation
Development of an Integral Fuel Cell System for Cardiac Pacemakers
Characteristics of Low-Temperature Inorganic and Biochemical Cellulose Fuel Cells
An Energy Alternative: The Iron-Thionine Photogalvanic Cell
Storage Batteries
Making a Homemade Storage Battery
Fuel Cell
Biochemical Fuel Cell
Comparative Efficiency of Three Types of Fuel Cells
Hydrogen-Oxygen Fuel Cell Power Pack
Efficiency of a Hydrogen-Oxygen Fuel Cell
Fuel Cell: Progress in Electrochemistry
Ion Exchange Fuel Cell
What Are the Advantages of an Ion Exchange Membrane Over a Liquid Electrolyte in a Hydrox Fuel Cell?
Effects of Polarization on the Methyl Alcohol Fuel Cell
The Use of Radioisotopes for Fuel Cell Stimulation
Research, Design and Construction of Ion-Exchange Fuel Cells
Biological Fuel Cells
Bacterial Fuel Cells

Thermoelectricity (Applied)

Thermoelectric Modules
Thermoelectric Junction Parameters

Solar Batteries. Solar Cells

Diamond-Like Amorphous Carbon (a-C:H) Thin Films as Antireflective Coatings for Silicon Solar Cells
Chemical Storage of Solar Energy
Hydrogen From Sunlight: An Interdisciplinary Approach to Biological Solar Energy Conversion
Effect of Sun Angle on Solar Cell Output
The Effects of Lithium in an Irradiated Solar Cell
Photovoltaic Generation of Electricity and the Special Efficiency of a Silicon Solar Cell
Improving Solar Cell Efficiency With Computer Control
Conversion of Sunlight Into Electrical Energy
Effect of Temperature on P-N Type Silicon Solar Cells
Solar Converter
An Experimental Solar Generator
P-N Junction Depth Versus Solar Cell Performance
Comparison of Selenium and Silicon Solar Cells

Magnetohydrodynamic Generators

Examination of a Magnetohydrodynamic Generating System
Development of a Model MHD Generator and Effects of Electrostatic Fields on Its Performance

DISTRIBUTION OR TRANSMISSION OF ELECTRIC POWER

A System of High Frequency High Potential Transmission of Electrical Energy Through the Atmosphere

APPLICATIONS OF ELECTRIC POWER

Mechanical Applications of Electric Power

Motor Driven Merry-Go-Round

ELECTRIC LIGHTING

Illuminating Power of Electricity
Electrical Lamp
A Carbon Arc Lamp and How It Works
Inside the Light Bulb
Demonstration of Electroluminescent Lighting
Automatic Ignition System for Fluorescent Lamps
Electroluminescent Panels, With Dielectric Composition and Back Electrode Variations
A Neon Tube and How It Works

ELECTRIC HEATING

A Home Welding Set
Transformer Welder
High Intensity Welding and Cutting Torch
Arc Welding

TELECOMMUNICATION

Determining the Range of Laser Communication Systems
Multiplexed Theory in Optical Communications
Laser Communications Technology
A Video Laser Communicator

Multi-Channel Optical Communication
Talking Over a Light Beam
Laser Communications
Numeric Laser Teletype
The Retrometer: A Passive Light-Beam Communications System

TELEGRAPH

How the Telegraph Works
Telegraph System
Versatile Emergency Transmitter

ELECTROACOUSTICS. ELECTROACOUSTIC TRANSDUCERS

Laser Beam Reading of Magnetic Tape
Dome-Shaped Speaker for Increased Quality of Sound Reproduction
Experimental Land-Water Phone
Application of Numerical Analysis to Information Theory With Particular Reference to Loudspeaker Testing

TELEPHONE

Parts of a Telephone and How It Works
Designing and Building Telephones
New Type Dial Telephone System
A Line Microphone
Euphonium Mouthpiece Research
High Speed Automatic Telephone Dials
A Model Telephone Setup
Telephones Through the Years

RADIO

Developing a New Method of Constructing Integrated Radio Circuits
Analyzation of the Radio Network as an Alternative Data Transfer Technique Between Computers
Inside Your Radio
A Short Wave Radio
A Narrow-Band, Multi-Channel Speech Communication System
Elimination of Interference in Radio
Analysis of a Resistance-Capacitance Network
Experimentation With Narrow Band Frequency Modulation
Microwave 2-Way Radio and Direction Finder
Operation of Amateur Radio Station
Changing the Frequency of Quartz Crystals
How a Crystal Radio is Constructed
Corona Wind Loudspeaker
4-Way Radio
Superheterodyne Broadcast Band Receiver
Pocket-Sized Transistor Radio
Amateur Radio Transmitter
Radio Control of a Gasoline-Powered Drive Mechanism
Can High Audio Frequencies be Used as a Detection System?
Transmission and Reception of Amplitude-Modulated Signals Without Sidebands
Instructing in Radio
Demonstration Radio
Construction of Receiving Set
Novel Pocket Radio
Simple Radio Receiver
One Control Radio
Loran
Fluorescent Lamp as Radio Output Indicator
Remote Tuning for Broadcast Receivers
Construction of a VHF Suppressed Carrier Transmitter
A Radio Timepiece
Radio Frequency Operates a Garage Door

RADAR

Marine Radar
Acoustic Radar
A 3,000 Megacycle Radar
Ultrasonic Radar
Doppler Radar Motion Analyzer
Experimental Doppler Radar Apparatus
Working of Radar Set

TELEVISION

Construction and Uses of a Television Display, Telephone Computer Terminal
Electroluminescence as a Possible Replacement for Color Television Picture Tubes
Light Emitting Diode Television Screen
Television Network Across the Nation
Design, Derivation and Testing of a Super-Regenerative Video Detector
Development of a Flat Video Display Panel for Television
Complete Video Recording System
Application of the Land Color Vision Theory to Color Television
Field Sequential Color: Color TV on the Moon
A New Concept in Color Television
Amateur Television Station
Mobile Televideo Communications Control System
A New Method of Converting a Light Image Into a Corresponding Electrical Signal and Its Practical Application in Television
Scale Model of a TV Studio
Color Television Using a Single Vidicon-Type Camera Tube
Analysis and Operation of Stereo Color Television

ELECTRONICS

Apparatus and Materials

Amplifiers, Antennas

The Parametric Amplifier
Self-Saturating Magnetic Amplifiers Constructed From Ordinary Inductors and Transformers
Building the Solion: A Chemical Amplifier
Flame Amplification
Antenna Research and Development
Properties of the Subminiature Integrated Antenna
Development and Analysis of a Directional Antenna System
Advanced Antenna Research at 432 Mc.
Effects of Physical Changes in the Transmission Lines of Antennas Upon the Standing-Wave Ratio

- Radiation Patterns of Antennas
- Development of an Omni-Directional Antenna
- Phase Optical Maser
- Energy Output Characteristics of the Optical Ruby Maser
- Development of Optical Adjustment System and Studies into Various Power Input Systems for the Neon-Helium Optical Maser
- Molecular Beam Maser
- Construction and Operation of a Helium-Neon Confocal Optical Maser

Electron Tubes

- Principles of a Vacuum Tube
- The Construction of a Vacuum Tube Tester
- Resistor and Tube Tester
- New Idea in Flat Cathode-Ray Tubes
- Circum-Cathodic Motion of the Ball-of-Fire Mode in Gas-Filled Electron Emission Tubes With Thermionic Cathodes
- Development of Cathode Rays
- Electron Flow in a Vacuum Tube
- Inverted Vacuum Tube Electrometer Using the 6BK4 Tube

Semiconductors

- Gamma Radiation Effects Upon Semiconductor Characteristics at High Atmospheric Levels
- Thin-Film Semiconductors
- Tunnel Diode
- Circuit Applications of the Tunnel Diode
- Effects of Various Stresses on the Tunnel Diode
- An Intensive Study of Semiconductors and the Fabrication of a Field-Effect Transistor
- Field-Effect Transistors and Field-Effect Transistor Amplifiers at -195°C
- Effects of 600 KEV Protons on Silicon Planar Transistors
- Semiconductor Diode
- Photoconductivity in a Semiconductor as Related to Optical Absorption and Carrier Mobility
- Semiconductors for Mobile Transmitters
- The Effects of Electron Radiation on Semiconductors Devices
- Analysis of Seebeck Effect in Semiconductors
- Construction of a Metal-Oxide-Surface Field-Effect Transistor
- Magnetic Modulation of Collector Currents of Transistors
- A Transistor Amateur Transmitter
- Transistors: Mighty Mites of Communications
- A Transistorized Communications Receiver
- Magnetism, Transistors and Electron Tubes
- Transistorized Nerve Cell
- An Idea for a New Composite Transistor
- Electronic Neurons and Their Networks
- Construction of Inexpensive Transistor Amplifying Equipment for Biological Research
- Measuring Specific Heat of Liquids Using Thermistors

Oscillators

- Coupled Oscillator Systems
- Oscillations Caused by a Mechanically Varied Inductance
- Application of the Neon Relaxation Oscillator
- Oscillator-Amplifier Using Variable Resistance and Photo Cell
- An Investigation of Resonance Phenomena in a Mechanical Oscillator
- Building a Code Oscillator

Microwaves

- Practicalities of Optical Microwave Communication and Telemetry
- Microwave Propagation Experiments
- Microwave Transmitter and Relay Receiving System
- Measurement of Microwave Field Patterns With Photosensitive Probes
- EPR Spectroscopy at Microwave Frequencies
- Wide Band Image Transmission at Microwave Frequencies
- A Microwave Simulation of X-Ray Diffraction
- Microwave Communications

Microelectronics. Integrated Circuits

- Radiation Induced Soft Faults in Microelectronic Devices
- Integrated Circuit Frequency Counter

Electronic Measurements

- Using the Oscilloscope as a Digital Graphic Display
- Building an Oscilloscope
- Construction of a Primary Frequency Standard

Applications of Electronics

- Theory and Implementation of a Semantic Processor
- The Reading Computer: Study in Animated Pattern Recognition
- Image Processing: Pictorial Information and Recognition Systems
- Phoneme Engineered Solid State Speech
- Development of an Ultra-Compact Speech Synthesizer
- Design of a Practical Low-Cost Electronic Word Recognition System
- Can Photons Talk?
- Speech Synthesis
- Terminal Analog Approach to Speech Synthesis
- Design and Construction of an Analog Speech Bandwidth Compression System
- Videotronic: An Electronic Aid for the Blind
- Application of Digital Techniques to Code Translation
- A Language Translator
- Logical Design for Opto-Electronic Scanner
- An Electronic Number Reader
- Electronic Remote Instrumentation Control
- Visual Interpretation of Patterns Through Electronics
- The Voice of an Experimental Electronic Speech Typer
- Voice Prints
- Electronic Production of Speech
- Electronic Vowel Synthesis
- Electronic Speech Synthesizer

Verbal Simulation of Speech Paterns and Word Formation Using an A-to-D Conversion Technique With a Computer
Design of a High Fidelity Tone Arm
Use of Twin Triodes in Stereo
Experimenting With High Fidelity
Electronic Tone Synthesizer
Development of an Electronic Remote-Indicating Liquid Level Measuring Instrument
Electronic Balance
Piezoelectric Laboratory Balance
Electronic Voting System
Design and Construction of an Electronic Slide Rule
Chronograph, Resistor-Capacitor Type
Stereo Versus Binaural: Two Channel Sound Reproduction Systems
Simtran: The Simulation Translator
Braille Electronic Translator Automatic
The Braille-Scriber: An Original Use for a Digital Computer
Audio Filters
Electronic Typing Device
Electronic Combination Lock
High Frequency Transistor Detector for Chromatography
Mapping by Transduction
The Dielectric Pump
Portable Inter-Communication Set
Electronic Automation
Electronic "Bug" to Follow Painted Line
Electronic Heating

Computer Engineering. Computer Hardware

Autonomous Computer Communications System With Applications for the Handicapped
Separation of Speech Signals by Computer Using Slope Reversal Analysis Techniques
Development of a Computerized Voice Frequency Analysis System
Computer Adaptability to Diverse Problems
ENTERPRISE: A Computer System for Teaching Computer Science
Computer Controlled Pollution Monitor
A Computer Networking System Using Pulse Width Modulation
Mantis: An Articulated Servo-Mechanism With Monocular Vision Controlled by Computer
A Computerized Transportation System for the Handicapped
Optical Disk: A Supplementary Memory System
Design and Construction of a Computer-Controlled Anomaloscope
Computer Simulation of Trout, Daphnia and Plankton in a Fresh Water Pond
DDMS: Dynamic Disk Memory System for Increased Memory
Construction of a Small Digital Computer System
Automated Computer Driven Controls for Laser Operation
Research Into Sound Communication With Computers
Feasibility of Designing a Palm-Sized High Level Language Computer
Microcomputer Picture-Based Communications System for Speech Therapy
LANPROC: Natural Language Processor
Teaching Sign Language With a Computer
Design of a 16-Bit Microprocessor
Word Processor/Text Editor for Any Small Computer
Computer System for Evaluating the Performance of Blind Subjects Using a Mobility Aid
Construction of a Modular Interpreter for a Computer Language
Vocal Interfaces for Digital Computers
Digital Computer, Using Relays and Recitfiers as Circuit Elements
Magnetic Core Logic Circuits
A Flexible and Inexpensive Memory System for Sequential Control
A Core Storage Memory Unit
Development of a Magnetic Drum Storage Unit for a Small Electronic Digital Computer
Application of Human Sound Waves to the Control of Digital Computer Circuitry
Precision Electronic Analog Computer and Transistorized Recorder
Voice Input Computer
Electronic Computer With Semiconductor Elements
Research in Digital Design and Circuitry
Experimental Solutions of Minimal Problems and Applications in Computer Circuitry
Electronic Learning Circuit
A Three-Fold Diode Coincidence Circuit
Apparatus for Computer Circuitry Research
Transistorized Digital Computer
Comparative Analysis of Design, Construction, and Experimental Operation of Analog and Digital Computers
Original Design and Construction of a Solid State Digital Computer
Design, Development, and Construction of a Small Binary Digital Computer
The D-c Electronic Analog Computer
Electronic Analog Simulation

Photoelectronic Devices (General)

Spectral Photovoltaics
Increasing Photovoltaic Output by Condensing and Tracking the Sun
Experimental Variations Affecting the Molecular Conductivity of a Photovoltaic Unit
The Development of a System for Acquisition of 3-Dimensional Images
Computer and Solid-State Image Sensor Interface: Operation, Construction and Application
Direct Current Without Commutator: Application of Photoconductive Cell
Conversion of Energy by Photocell
A Study of Photocells
Applications of Photoconductivity in Various Electronic Devices
Internal Condition of Silicon Photovoltaic Cells
Spectral Sensitivity of a Silicon Photovoltaic Cell
Characteristics of Cuprous Oxide Photovoltaic Cells

NUCLEAR ENGINEERING. ATOMIC POWER

Nuclear Reactors

Computer Simulation of a Heavy-Water Moderated Nuclear Reactor
The Use of Mass Spectrometry to Measure the By-Product Production of Heavy Water From a Synthetic Fuel Plant

MOTOR VEHICLES. AERONAUTICS. ASTRONAUTICS — TL

MOTOR VEHICLES

Design for Efficiency of the Hybrid Electric Car
Know Your Automobiles
The Driverless Automobile
Plastic Automobiles
Caterpillar Tractors

Gasoline Automobiles

Carburetor Design for High Fuel Economy
Wave Mechanics in Two-Stroke Engine Exhaust Systems
Difference Between 2- and 4-Cycle Engine
The Working of a Gasoline Engine
Gasoline and Diesel Engine Differences
Automobile Ignition System

Design, Construction and Equipment

Development of an Electromagnetic Vehicle
Basic Lift Principles as Applied to Modern Road Vehicles for Increased Fuel Economy
Braking Distances on Various Road Surfaces at 20mph
An Automatic Transmission
Aerodynamics in Auto Racing
Aerodynamics of Automobiles

Cycles

Investigation of Motorcycle In-Flight Torque
Gasoline Motor for Bicycle

AERONAUTICS. AERONAUTICAL ENGINEERING

Miscellaneous Aspects of the General Subject

Environmental Aeronautics
PIRATE: Programmed Interpretation of Received Atmospheric Conditions Transduced Electronically
Increased Aircraft Safety Through the Use of Rotational Canards
The Return of the Boomerang
Flight Through the Ages
Evolution of Air Travel
Air Routes of the United States
Safety in Landing
Controlling an Airplane Model in Flight
Electronics in Flight

Aeronautical Research

Design of Pulsed Dye Laser and Sonic Wind Tunnel
A Frisbee Performance Study Using a Uniform Throwing Device
An Amateur Built Smoke Tunnel Used to Demonstrate Lift of Airfoils
Wind Tunnel Comparisons of Flat, Circular and Elliptical Wings
Wind Tunnel Design and Remote Piloted Testing of Experimental Aerodynamic Design
Supersonic Wind Tunnel Experimentation
Design for a Man-Powered Flying Machine
Design and Characteristics of a Minature Supersonic Wind Tunnel
Design and Use of Wind Tunnel in the Development of High Performance Aircraft
Operational Low-Speed Smoke-Wind Tunnel
Development of a Small Closed Circuit Wind Tunnel
Designing and Constructing an Eight-Foot Single-Return Wind Tunnel
Design and Construction of a Wind Tunnel
Applied Research in Model Aeronautics

Mechanics of Flight Aerodynamics

Conquering the Tip Vortices
Design and Optimization of a High-Lift Airfoil
Investigation of Various Aerofoils in Relation to Angle of Attack
A Study and Possible Application of the Ground Effect
Improving Laminar Flow by Differing Surface Textures
Computer Enhanced Photoelastic Stress Analysis and Flow Pattern Determination in Aerodynamic Structures
The Effects of Boundary Layer Removal
Terraced Airfoils
Aerodynamics of Strake-Wing Interactions
Drag Coefficient: Its Relationship to Size
Aerodynamic Stability Induced by Gyration
Airplane Pitch Stability
Thrust Test Stand
The Aerodynamics of Two Hypersonic Air-breathing Vehicles
Minimizing the Total Drag of a Three-Dimensional Wing in Hypersonic Flow
Experimentation in Aerodynamics
Aerodynamic Principles of a Flying Platform
Airfoils: Lift and Drag
Original Research and Design Procedures Resulting in a Variable Camber and Thickness Airfoil

Natural Flight

Aerodynamics of Birds' Bodies and Its Applications
Mechanics of Insect Flight
An Aerodynamic Analysis: The Ring-Billed Gull

Soaring

Thermals and Soaring Flight

Hovering

The Aero-Technical Aspects of Hovercrafts

Designing, Building and Testing Stablilization Systems for a Hovercraft
Torque Control for a Hovercraft
Radio Remote Control Electric Powered Hovercraft
Experimenting With GEM (Ground Effects Machines)
Ground Effect Vehicles
The Peripheral Jet Ground Effect Machine
Radio Controlled Peripheral Nozzle Air Cushion Vehicle

Instruments

Swiftest Descent Apparatus

Aircraft

SSVTOL Aircraft (Spin Stabilized Vertical Take-off or Landing Aircraft)
Scientific Applications in Engineering a Semibuoyant Nonrigid Dirigible Airship
Principles in the Construction of Airplanes
Advantage of Streamlining in Aircraft Construction
Airplane Controls
Flying Wing Model
Radio Controlled Aircraft
Two Concepts for V/STOL Aircraft

Jet Propulsion

The Penetration and Diffusion of Supersonic Fluid Injectors
Application of Water Channel and Hydraulic Analogy to a Study of Supersonic Ramjets

Flying Machines Other Than Airplanes

Design of Autogyros
Experimental Radio Controlled Helicopter

Kites

Flight Characteristics of Various Kite Designs

ROCKET PROPULSION. ROCKETS

Study of Roll as a Factor in Rocket Dynamic Stability
Experimental Study of Flexible vs. Rigid Oscillating Tail Propulsion
Zinc-Sulfur Rocket Booster Design
Approximating the Solution to the Linear Thrust Rocket
Research in Rocketry
Experimental Research in the Development of the Pressure System for a Laboratory Rocket
Effect of Approximations Upon Theoretical Rocket Engine Performance
Exploring Space Through Rocketry
The Krushnik Effect on Rocket Propulsion
Fundamentals of Rocket Propulsion
Amateur Rocketry
A Year and a Half With Rockets
Study and Experimentation on Rocket Propulsion
Principles of Rockets and Satellites
Development of a Rocket Research Vehicle
Augmenting Subsonic Rocket Performance With Ducted Propulsion

Special Types of Rockets and Propulsion

Design and Analysis of an Ion Propulsion Thruster
Hybrid-Fuel Rocket Engine
Electromagnetic Propulsion
Liquid Bipropellant Rocket
Obstructing the Gas Flow of Solid Propellant Engines
Ion-Propelled Aircraft
Experiment and Design of Solid Propellant Rockets With the Aid of a Home-Built Static Tester
An Electrical System, for the Safe Ignition of Amateur Solid-Propellant Rockets
How to Build and Fire a Workable Solid Propellant Rocket
Design, Construction and Testing of a Liquid Propellant Laboratory Rocket
Increasing the Performance of a Liquid-Propelled Rocket Engine
Pressure Rockets
Exotic Propulsion Systems
Electric Propulsion in Space
Ion Propulsion - Key to the Universe?
An Ion Motor Propulsion System
Electrostatic Rocket
Thermonuclear Propulsion for Deep Space Exploration
Acceleration of Charged Particles for Space Propulsion
Electromagnetic Rocket Launcher

Special Topics

Fin Canting: A Novel Method for Rocket Stabilization
Rocket Stability by Alteration of Combustion Chamber
Aerodynamics and Geometry of Rocket Nozzles
New Method for Ignition of Multiple-Stage Rockets
Characteristics of an Unconventional Rocket Engine-Plug Nozzle
Functions of Rocket Engines
Effect of Expansion Ratio on the Thrust of Rocket Nozzles
Telemetering and Tracking System for Rockets Utilizing a Tubeless Automatic Radar Tracking System Computer

Fuel

Fuel, Tracking and Instrumentation for Amateur Rockets
Testing Rocket Fuel in Homemade Test Equipment
Experiences With Solid Rocket Fuels
Effect of Fuel Surface Area in Regulating Rocket Engine Thrust
Comparison of Solid Propellants with Particular Attention to Their Use in Small, Unmanned Rockets
Thrust Stand and Rocket Fuels

Solar Flux for Space Propulsion
Experiments With Potassium Perchlorate-Asphalt Solid Propellant
Development of Rocket Fuel
Solid Rocket Propellant Research
Testing the Feasibility of Using Diatomaceous Earth as an Agent for Controlling the Speed of Reaction of Solid Rocket Fuels

ASTRONAUTICS. SPACE TRAVEL

Use of an Ion Wind Tunnel to Study Drag on a Space Ship

Artificial Satellites

The Magnetohydrodynamic Generator as a Space Situated Power Station
Study in Non-Keplerian Satellite Dynamics
Project Observation Satellite
Weather Pictures via the Satellites
Cosmic Communication Satellite
Design and Development of Pulse Code Modulation System as Part of Satellite Telemetry System

Flights to Special Planets, Moon

Operation Moon-Bounce
Design and Construction of a Lunar Probe
Possible Lunar Module
Unmanned Moon Probe
Living on the Moon
Photosynthetic Gas Exchange System for a Permanent Moon Base

Model Rockets. Model Space Vehicles

A Study of the Oscillations of a Subsonic Non-roll Model Rocket in Its Flight
Development and Testing of Optimized Model Rocket Designs
Krushnik Effect: Its Nature, Causes and Effects on Model Rockets
Model Rocket Altitude Calculations
A Full-Scale Working Model of a Space Capsule Destined to Mars
Preflight Aerodynamics in Model Rocketry

Space Navigation

Paradox of Time in Space Travel at Speeds Close to That of Light
Simplified Spacecraft Inertial Guidance Systems
Solution of Satellite Orbits Using Digital Computers
Simulating Satellite Orbits
Astro-Navigation
Celestial Navigation
Techniques of Interplanetary Space Navigation
Steps Toward Space Travel and the Space Station
"Argonaut," the Interplanetary Spacecraft

Electric Equipment on Space Vehicles

Solar Cell Functioning in Space

Astrodynamics. Flight Mechanics. Celestial Mechanics

Magnetic Deceleration of Interstellar Spacecraft
Space Reentry - Developing a High Performance Reentry Lifting-Body
Effects of Space Environment on Material Mechanics

Life Support Systems. Human Engineering. Human Environment Equipment and Testing

Conditioning for Space Through Rapid Acceleration
Oxygen for Space - Produced as You Go!
A Method of Obtaining a Complete Balance of Life Within a Closed System
Space Feeding
Making a Pure Oxygen Atmosphere Tolerable
Environmental Control for Space Travel
Use of the Photosynthetic Gas Exchanger in the Closed Ecological System

Astrionics. Electronic Equipment on Space Vehicles

Photo Electromagnetic Reaction Attitude Control for Spacecraft
Attitude Control of Space Vehicles

MINING ENGINEERING. METALLURGY — TN

DANGERS AND ACCIDENTS IN MINES AND QUARRIES

Dust Explosibility

ORE DEPOSITS AND MINING OF PARTICULAR METALS

Location of Metals in U.S.
Mining Iron Ore
Lead Mining
Research in Hydrothermal Ore Veins in the Taunus Mountains
Aluminum From Clay
Magnesium: Raw Material to Finished Product
Foam Flotation of Cu(II) With a Chelating Surfactant

METALLURGY

Metallurgical Plants

Modern Blast Furnace

Metallography. Physical Metallurgy

Causes of Variation in the Atomic Density of Metals
Effects of Various Treatments on Steel's Microstructure

Metallurgy of Nonferrous Metals

Application of Homogenous Solvent Extraction to the Metallurgy of Copper
Various Carbon Anodes for Reduction of Energy Consumption in the Aluminum Industry
Processing Uranium Ores Into the Pure Uranium Metal and Various Oxides of Uranium
Preparation of the Rare and Strategic Metal, Beryllium

Original Process for Extraction of Cesium Metal From Pollucite
Process for Extraction of Silver From Silver Chloride Ores
Manufacture of Aluminum by a New Process

Metallury of Ferrous Metals

Diffusion of Chromium Into Carbon Steels
Titanium Carbide Formation by the Titaniding of Steels
Mossbauer Effect Study of the Heat Treatments of a Tool Steel

NONMETALLIC MINERALS

Uses of Salt

Coal

Microbiological Coal Desulfurization Using Thiobacillus ferroxidans
A Typical Coal Mine
Progress in Coal Mining
Thermogravimetric Coal Analysis

Petroleum. Petroleum Engineering

Cyamopsis tetragonoloba Release of Crude From Various Tar Sands
Oil in the Making
How Petroleum is Entrapped
Oil Bearing Layers of Rock
Story of Petroleum: Formation, Drilling and Refining

Natural Gas

Geographical Cross-Section Showing Oil and Gas
Storing Natural Gas Underground

CHEMICAL TECHNOLOGY — TP

CHEMICAL ENGINEERING

Special Processes and Operations

Designing and Building an Operating Gas Chromatograph
4-Arm Polystyrene Synthesis
Fluidized-Bed Combustion: A Hot Idea
Use of Eichhornia crassipes as a Carbohydrate for the Polymerization of Plastic
Photochemically Induced Carbon Network Crosslinking of Polyethylene
Hydrogenation of Vegetable Oils

Apparatus and Supplies

Experimental Hydrogen Engine and Instrument to Measure Engine Performance
Plasma Electron Beam Welder

CHEMISTRY OF FIRE AND FIRE PREVENTION

Flammability of Fabrics and Flame Retarding Fabrics
Fire Retardancy in Chloride Hydrates

FUEL

Possibility of a New Synthetic Fuel
Production of Liquid Fuels From Inaccessible Hydrocarbon Resources
Alternate Fuels From Wood
Methanol as a Gasoline Extender
Catalytic Extraction of Gasoline From the Osage Orange
An Improved Methane Digester and Methane Powered Engine
Diesel Fuel: Aqueous Alcohol Microemulsions
Sugarcane Juice: Material for the Efficient Production of Ethanol as an Alternate Energy Source
Experiments on the Desulfurization and BTU Retention of Coal
Microbial Degradation of Diesel Fuel
Formation of Toxic Products by Photooxidation of #2 Fuel Oil
Use of Citrus Pulp in the Production of Hydrogen Fuel by rhodopseudomonas acidophila
Euphorbia lactea as a Future Fuel Alternative

FOOD PROCESSING AND MANUFACTURE

Vitamin and Mineral Loss Related to Food Preparation
Corn and Corn Products
A Method of Saccharimetry
Wood Hydrolysis for Sugar Production
Apple Cider Vinegar - Fact or Foolishness?
Soybean Products
The Products of the Peanut
Products From Sweet Potatoes

REFRIGERATION AND ICEMAKING

Principle of Refrigeration

FERMENTATION INDUSTRIES. BEVERAGES. ALCOHOL

Enzymatic and Vitamin Stimulation of the Fermentation Process
Factors Affecting the Process of Alcoholic Fermentation of Grapes
The Design and Analysis of a Continuous Flow Grain Fermenter
Growth of Yeast on Vegetable Oil
Anaerobic Fermentation of Glucose

OILS. FATS. WAXES

Extraction of Oil From Euphorbia marginata and Its Uses
Investigation of the Structure of Shale Oil Asphaltenes
Production of Petroleum Products From Oil Shale
Viscosity Changes of Oil With Use
Use of Super Heated Steam in Situ Oil Shale Retorting
Bacterial Degradation of Petroleum Hydrocarbons
Effects of Sodium Sulfite on the Production of Glycerol by Yeast Fermentation

Study in the Utilization of Petroleum Hydrocarbon Compounds

GAS INDUSTRY

An Investigation Concerning the Use of Half-Calcined Dolomite as an Absorber of Pollutant Hydrogen Sulfide Gas Liberated During Coal Gasification

CLAY INDUSTRIES. CERAMICS. GLASS

Effects of Accelerated Ions on the Strength of Soda-Lime Glass
Effect of Oxidation on the Size of Clay Particles
Investigation and Development of Unusual Ceramic Glazes
Glass and Its Processing
New Developments in Glass
Fracture Rate of Glass

CEMENT INDUSTRIES - CEMENT. LIME. MORTAR. PLASTER

A Comparison of the Relative Strength of Cement and Fly Ash Used in Concrete
Effect of Water-Cement Ratio on the Compressive Strength of Concrete
Effectiveness of Foundry Slag as a Substitute for Sand in the Production of Concrete
Use of Glass as Fine Aggregate in Concrete Mixer
Strengthening Effects of Particle Reinforcement in Portland Cement and Plaster

TEXTILE BLEACHING. DYEING. PRINTING

Effect of Preparation Variations on Variability of Dyeings on Cotton Fabrics
The Ability of Presoaks to Remove Stains
How to Remove Stains
Dyeing and Bleaching Agents
Natural Dyes for Home Use

PAINTS. PIGMENTS. VARNISHES

Chemistry of Pigments
Coatings Against Corrosion
Effect of a Certain Eraser on Plastic and Paint

MISCELLANEOUS ORGANIC CHEMICAL INDUSTRIES

Tensile Strengths of Commercially Used Adhesives
Radiation, Magnetic and Electrical Field Analysis of Photoelastic Resin Solidification
Antigelling Effect of Fresh Pineapple on Gelatine
Manufacture of Glue
Extraction of Urea for Glue-Making
Chemistry of Cosmetics - The Science of Beauty
Manufacture and Use of Essential Oils
Experiments in Saponification
A Test for Free Alkali in Soap
Soap Films

UTILIZATION OF WASTES

Hydrogen Production From Nuclear Wastes
The Biological Conversion of Household Vegetable Wastes to Natural Gas
Conversion of Waste Papers (Cellulose) to Glucose to Gasohol
Fermentation of Waste Materials to Make Methane
Investigation of Furfural Production From Corncobs
Converting Waste Cellulose Into Usable Protein
Conversion of the Gaseous Pollutants of Coal Burning Plants Into Commercial Fertilizers Using a Model Emission Control System
Developing Useful Products From Onion Skins
Why Waste the Stalk?
Formation of Furfural From Farm Wastes
Conservation Through Reclamation of Old Tires
New Uses for the Osage Orange Fruit Seed
Development of a Feed Ingredient From Packing House Blood and Manure Waste
Useful Products From Cornstalks and Corncob Wastes

POLYMERS AND POLYMER MANUFACTURE

Effects of pH on the Dyeability, Physical Structure and Strength of Nylon 66
Quantitative Study of the Effects of Ionizing Radiation on Plastics
Pyrolysis of Polystyrene
Anisotropic Properties of Plastic
Making Plastics From Gelatin
Experimenting With Sugar Plastics
Plastics and Polymerization
Plastics Versus Metals
Causes of Stress in Plastics
Making Neoprene
Casein Plastics
Development of a Fiberglass Reinforced Plastic SCUBA Tank
Radio-Thermoplastic Dye Absorption in Polyethylene

PHOTOGRAPHY — TR

CAMERAS

A New Concept in Visual Communication: The Solid State Photoelectric Image Camera
The Pinhole Camera
Model Camera

THEORY OF PHOTOGRAPHIC PROCESSES IN GENERAL

Decay of the Latent Image in Photographic Emulsion
Quantitative Analysis of Photographic Characteristics Using Video Techniques
The Chemistry in Photography
Possible Explanation for the Apparent Duality of the Russell Effect on Photographic Emulsions

SENSITIVE SURFACES

Development of Photographic Film
Experiments With Photographic Papers

PHOTOGRAPHIC PROCESSING. DARKROOM TECHNIQUE (GENERAL)

Building a Photograph Enlarger
Quality Control System for Reproduction of Negatives
Dyes and the Photographic Process

COLOR PHOTOGRAPHY

Photographic Color Representation
Color Sensitivity in Photographic Emulsions

TRANSPARENCIES. DIAPOSITIVES

Miniature Slide Projector
Construction of an Opaque Projector
Methods of Making Lantern Slides

LIGHTING

A Repeater Photo-Flash Bulb

APPLIED PHOTOGRAPHY

Scientific and Technical Applications

Use of Photography in Investigating Free Fall
Photosynthetic Photography
Stereoscopic Photography
A Time Laspe Photographic Study of the Reaction of Drosera intermedia (Sundew) to Certain Chemical and Physical Stimuli
Liquid Lens Photography
Photographic Investigation of High Voltage Electric Arcs
Photography of Microscopic Animals
Explorations With Infrared Photography and Infrared Luminescence
Photography by Invisible Light
Laser Photography

Geographical Applications

Determining Altitude Through Aerial Photography
Analysing Landsat 1 Data and NASA Photographs of Mount Ranier

CINEMATOGRAPHY. MOTION PICTURES

High-Speed Photography of Random-Moving Objects
Time Lapse Photography

PHOTOMECHANICAL PROCESSES

Experiments in Kirlian Electrophotography
Chemical Research in Photoengraving

MANUFACTURES — TS

METAL MANUFACTURES. METALWORKING

Application of Electromagnetism to Electroplating
Explosive Forming of Metals
Plating Metal on Plastics
Nickel Plating
Zinc Plating
Electroplating and Polishing
Electrolysis and Electroplating
Ornamental Etching and Copper Plating of Aluminum Trays
Electromotive Series and Electroplating
Anodizing and Dyeing Alumimum
Evaporation of Aluminum Onto Glass

WOOD TECHNOLOGY. LUMBER

Cork - Its Orgin and Products
Cork Substitutes From Plant Fibers

CHEMICAL PROCESSING OF WOOD

Wood Studies: Lignin Content vs. Tensile Strength
Biosynthesis of Cellulase for Use in the Hydrolysis of Cellulose
Analysis of Wood
Measurement of Wood Texture
Physical Analysis of Wood
Wood Saccharification

PAPER MANUFACTURE AND TRADE

Derivation of Cellulose Fiber From Pueraria labota for Processing Into Paper
Influence of Chitosan on the Physical Properties of Sulfite Pulp
The Strength of Paper
The ABC's of Paper-Making
Process of Making Paper
Paper - An Everyday Wonder
Instant Fingerprint Paper

TEXTILE INDUSTRIES

The Identification and Comparison of Fibers by Laser Speckle
Modern Preservatives of Fabrics
Cotton Processing
Wool and Its Products
Formation of Fibers From an Inorganic Salt
Comparison of Nylon With Cotton
Comparison of Chemical and Physical Properties of the Common Fibers
Textiles
Birth of a New Synthetic Fiber
Products From Grasses
Making of Linoleum

HOME ECONOMICS — TX

NUTRITION. FOODS AND FOOD SUPPLY

Where Is Your Food Coming From in the Future?

Animal Foods

Evaporated Milk
Milk and Milk Products
Fish Flour
Pork Products

Examination and Analysis. Composition. Adulteration

Risk of Food Additives in Relation to the Nutritional Value in Products
Algal Nutrients to Enrich the Family's Diet
Mineral Composition of Four Garden Vegetables in Relation to Human Dietary Requirements
Effect of Microwave Versus Conventional Heating on Vitamin C Content
The Honey You Eat - A Documentary Film
Products Obtained From Cotton Seed
Lemna: Its Cultivation for Possible Use as Food
Value of Food
Foods Supplying Vitamins
Nutritional Studies With Corn
Testing What We Eat
Testing Foods for Adulterants
Cyclamates
Identity of Synthetic Color Additives in Foods and Food Related Products
Sulfur Treating of Fruit

Preservation and Storage of Foods

Ways of Preserving Food

COOKERY

Microwave Cooking Versus Conventional Cooking

MILITARY SCIENCE (GENERAL) — U

Mathematics of Projectile Motion
Trajectory of a Projectile Apparatus
The Development of a Tactical Fighter
The Guided Missle
Projectile Stability
Magnetic Missle Launcher
Anti-Submarine Warfare Research

NAVAL SCIENCE (GENERAL) — V

A Study of Sail Performance Through Wind Tunnel Testing
Effects of Velocity and Weight Displacement on the Design of Marine Ship Hulls
Experimental and Conventional Sail Designs
Study of Sail Performance Through Wind Tunnel Testing
Effect of Low Reynolds Number Winglets on the Lift and Drag of Model Sailplane Wing
The Experimental Development of the Jib-Main Sloop
Sonar-Controlled Boat

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